

WORKING BULLETIN
FOR THE SCIENTIFIC INVESTIGATION OF
JAMAICA DOGWOOD,
(PISCIDIA ERYTHRINA.)

A Plan to promote Progress in the Science of Pharmacology.

This working bulletin, accompanied by the drug to be investigated, or a preparation of the same, or both, as the circumstances require, is distributed gratuitously to the Colleges, Universities, and other institutions engaged in scientific work, and to the government hospitals, and public hospitals and dispensaries, and to the medical profession at large, to obtain the results of the drug in treating the sick.

The object is to promote original investigation in the science of drugs. This we propose to do by furnishing gratuitously to those engaged in original research, material for investigation, and by publishing the results of the same as a donation to scientific literature. It is apparent that the only return which we can receive for this work is the increased demand for the valuable drugs which we are introducing to science, for we guarantee to publish full reports, favorable or otherwise.

Articles in relation to the drug, under the following heads embraced by the pharmacology, are requested for the THERAPEUTIC GAZETTE, the organ which represents this new system of work. These heads form the classification of this bulletin. In regard to each drug investigated we solicit reports for publication upon the subjects of scientific name; synonyms; definition; natural order; botanical origin; history; commerce; production; cultivation; description; microscopical structure; chemical composition; uses in medicine; adulterations and substitutions; pharmaceutical preparations and dose; antagonists and incompatibles; synergists; physiological action; therapeutic properties; toxicology and antidotes.

At the end of the year the reports published in the GAZETTE will be collected, classified, and published in the form of an ANNUAL REPORT, which will be donated to the libraries of the Smithsonian Institute, a government institute at Washington for the free diffusion of knowledge; and a sample of the drug, and our preparation of it, will be deposited in the National Museum, in the department delegated to pharmacology.

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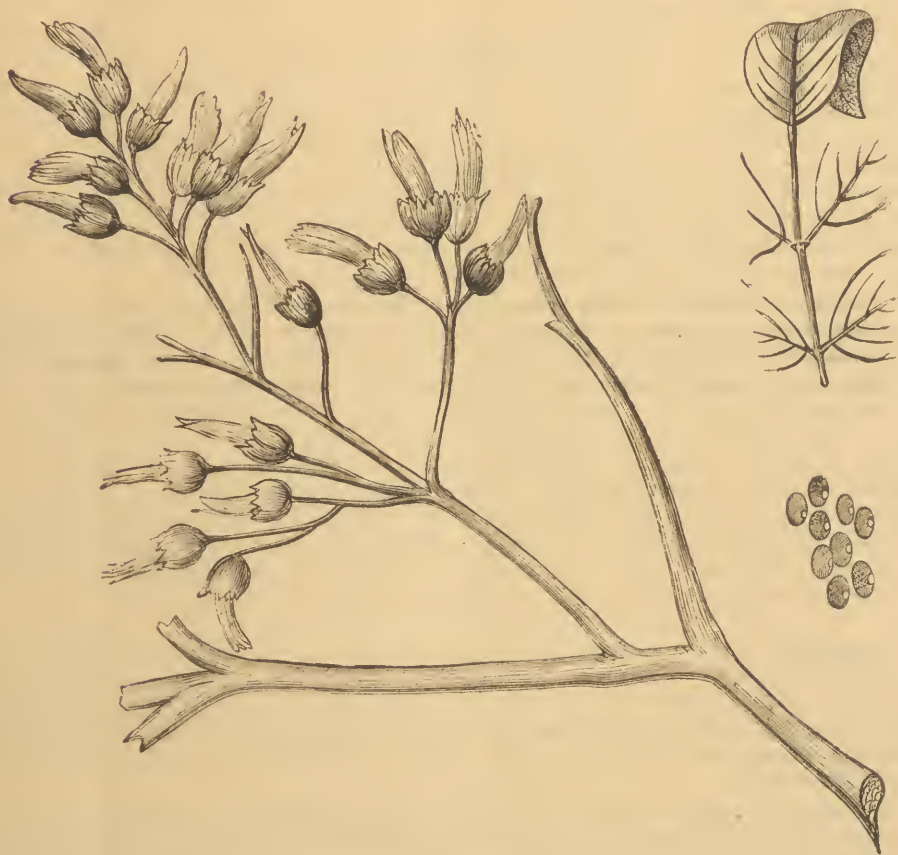
Manufacturing Chemists, Detroit, Mich., U. S. A.



PISCIDIA ERYTHRINA.

(JAMAICA DOGWOOD.)

Erythrina piscipula,—"the fish catching coral tree," (Linn.) *Mulungú*, or *murungú* (*Diccionario de Botanica Brasileira*),—the bark of *erythrina corallodendron* is also used under the same name according to this authority.



JAMAICA DOGWOOD—PISCIDIA ERYTHRINA.

Botanical Origin.—The *piscidia erythrina* is extensively distributed throughout the Archipelago of the Antilles, and flourishes chiefly in the lowlands, and on dry calcareous or volcanic hills in the vicinity of the sea; flowering in the spring months, and chiefly in April, when the tree is bare of leaves, which rarely appear before the departure of the blossoms; these are diadelphous, of a whitish color, forming terminal thyrsoid racemes, and are succeeded by compressed, membranaceous winged legumes, containing roundish seeds. These seeds not improbably partake of the medicinal properties of the bark of the roots; and at all events, merit the labor of experiment.

The dogwood tree, as far as my experience goes, is of moderate dimensions—those which I met with on Saddle-Hill, in Nevis, averaging the height of good apple trees; but in Guadaloupe and Dominica I have met with specimens of a somewhat more aspiring stature. The timber, which I had not an opportunity of examining, is described by Luna, in his *Hortus Jamaicensis*, as being of a lightish brown color, coarse, cross-grained, pondrous, firm, and resinous; well adapted for piles for wharves, from its great durability, both in and out of the water. It is easily propagated by seeds or cuttings, and stakes cut from it soon take root, and form an excellent live fence.—Wm. Hamilton, M. B., H. M. L. S., in *Pharmaceutical Journal and Transactions*.

Coral arbor polyphylla non spinosa, fraxini folio siliqua alis foliaceis exstantibus rotæ inolendinariæ fluvialis ancta.—*Sloane*.

Ichthyomethia folliis pinnatis ovatis, racemis terminalibus, siliquis quadrialatus.—*Browne*.

A tree, usually about 20 feet in height; leaflets three or four paired, with an odd one, petiolated, oblong, or obovate-elliptic, rounded at base, entire, pubescent on both sides when young, but subglabrous when old; paler, with minute white dots beneath. Racemes compound, axillary (terminal, Swartz), peduncle trigonal, puberulous; divisions about an inch in length; flowers whitish, with a purple tinge, shortly pedicelled, with a pair of oblong scarious deciduous bractes, about the middle of each pedicle. Calyx colored, very minutely puberulous, the two upper teeth coaduate, the three lower bluntish; standard rounded, emarginate, with a greenish tinge in the centre; wings and keel colored at apex; stamens nine to one. Ovary linear compressed; stigma obtuse; stipe of the legume twice or thrice longer than the calyx; wings four, longitudinal, membranaceous, with the margin undulated and irregularly lacerated. The leaves are shed early in the year, and previous to the development of the new foliage, the flowers make their appearance.—*James Macfaden, M. D., (Botany of Jamaica.)*

Piscidia Erythrina (Linnæus) Jamaica Dogwood.—This tree belongs to the large and important order of the Leguminosæ, better known as the Pulse family, familiar representatives of which are found in the locust, cassia, tamarind, and the like. The majority of the plants that belong to this widely diffused order are indigenous to foreign lands. The order is somewhat peculiar in that it embraces plants widely used as food, especially the tamarind and others equally widely known as poisons. Of the latter class the most important is the physostigma (Calabar bean), which contains that very poisonous alkaloid, physostigmin, and also *Sophora speciosa*, Burth. (Sophora bean), indigenous to Western Texas, from which Dr. H. C. Wood, in 1877, isolated an alkaloid, which he named Sophoria, the action of which is not unlike that of the Calabar bean. From these connections we need not be surprised that Jamaica dogwood contains most active properties.—*A. C. Nagle in Druggist's Circular.*

Piscidia erythrina L., Jamaica dogwood, at one time called by Linné, *erythrina piscipula*, "the fish catching coral tree," belongs to the natural family Leguminosæ. It is a native of the West Indies, chiefly growing in arid districts on the mountains of the Antilles. It is most frequent in Jamaica. When full grown, it attains a height of 20 to 25 feet; has a bright-colored, smooth bark, and very irregular spreading branches. The leaves are twice or thrice pinnatifid, somewhat coriaceous, covered with a fine down when young, afterwards becoming almost glabrous and deciduous. Leaflets about two inches long, twelve to sixteen lines broad, and pointed. Panicles are bushy, many flowered, and make their appearance before or together with the leaves. Calyx brownish red, covered with greenish hairs; campanulate, five-sepalous; corolla papilionaceous and whitish, with roundish emarginate standard, and with obliquely ovate alæ, having blood red veins. Keel curved, blunt and bifid, with a blood red point. Legume linear, quadri-alate, about three inches long, constricted between the seeds; alæ broader than legume. Seeds oblong oval, compressed. Tree flowers in March and April.—*New Remedies.*

History.—The first account of the drug which came to our notice is an article by Dr. Baram, of Jamaica in *Hortus Americanus*, published in 1794. Dr. B. says that he employed this bark, which he found very restraining, in the shape of a decoction, to cleanse and stop the great flux of ulcers and make them fit to heal, and cure the mange in dogs (p. 52); but it does not appear that he made any experiments upon its internal effects, and if he had, he would have found the decoction an inert form of exhibition.

According to Prof. Fernando Altamarano, M. D., of Mexico, experiments upon animals have demonstrated the power of this drug, in large doses, to produce prompt paralysis of the motor nerves, while it does not affect the great centres of innervation (cerebellum and medulla), the great sympathetic nerve, or the smooth or non-striated muscular fibre. Neither does it affect the seat of intelligence, the heart rhythm, the temperature, or peristaltic action.

Dr. Wm. Hamilton, of Plymouth, England, in a communication to the *Pharmaceutical Journal* (see also U. S. Dispensatory—Wood & Baché—14th ed., p. 1734) speaks of this plant as a powerful narcotic capable of producing sleep and relieving pain in an extraordinary manner. He had noticed, when resident in the West Indies, the use of the bark of the root in the taking of fish, upon which, even when of a large size it exercised a very strong narcotic effect. He was induced to try it as an anodyne in toothache, and found a saturated tincture very efficacious, not only affording relief when taken internally, but uniformly curing the pain when introduced upon a dossil of cotton into the carious tooth. The bark of the root to be effectual, should be gathered during the period of inflorescence in April. When chewed it has an unpleasant acrimony like that of mezereon. It yields its virtues to alcohol, but not to water. The formula employed by him in preparing the tincture was to macerate an ounce of the bark, in coarse powder, in four fluid ounces of rectified spirit, for twenty-four hours, and then to filter. The dose is a fluid drachm. He first tried it on himself, when laboring under severe toothache, taking the quantity mentioned in cold water on going to bed. He first felt a violent sensation of heat internally, which gradually extended to the surface, and was followed by profuse perspiration, with profound sleep for twelve hours. On awaking he was quite free from pain, and without the unpleasant sensations which follow a dose of opium.

H. V. Sweringen in his *Dictionary of Pharmaceutical Science* speaks of *piscidia erythrina* as "a powerful narcotic plant growing in the West Indies, capable of producing sleep and relieving pain in an extraordinary manner."

John Lindley, Ph. D., F. R. S., F. L. S., late Emeritus Professor of Botany in University College, London; author of "The Vegetable Kingdom," and Thomas Moore, F. L. S., Curator of the Chelsea Botanical Gardens; author of "Index Filicum"; and associate editor of "The Gardener's Chronicle," in "The Treasury of Botany," edited by them, also speaks of Jamaica Dogwood: "*Piscidia*.—A West Indian tree constituting a genus of *Leguminosae* with the foliage habit and flowers of *Lonchocarpus*, but the pod bears four projecting longitudinal wings. The powdered leaves and young branches of this tree, *P. Erythrina*, like those of some of the allied arboreal *Papilionaceae*, are used for poisoning fish."

A. H. R. Griesbach, M. D., F. L. S., Professor of Botany in the University of Göttingen, in his "Flora of the British West Indian Islands" gives a botanical description of *P. Erythrina*. De Candolle, in *Prodromus Systematis Naturalis Regni Vegetalis*, also describes it. This work was published at Paris in 1825. Another account in Loudon's *Encyclopedia of Plants*, London, 1877, p. 606, is to this effect "*Piscidia*, from *piscis*, a fish; the inhabitants of America use the bark as a fish poison. The tree has spreading branches and pinnate leaves, and is very common in Jamaica, where it is reckoned as one of the best timber trees of the Island. The wood is very heavy and resinous, and lasts almost equally in or out of water. It is of light-brown color, coarse, cross-grained and heavy. (Browne.) It makes excellent piles for wharfs. The stakes soon form a good live fence. The bark of the trunk is very astringent; a decoction of it stops the immediate discharge of ulcers, especially when it is combined with margrove bark; it cures the mange in dogs; and would probably answer well for tanning leather. (Long, 1824) The bark of the root is used for the same purpose and with the same effects as the leaves and branches of Surinam poison; it is pounded and mixed with the water in some deep and convenient part of a river or creek, whence it may spread itself; in a few minutes the fish that lie hid under the rocks or banks rise to the surface, where they float as if they were dead, most of the large ones recover after a time, but the smaller fry are destroyed. The eel is not intoxicated with common doses, though it is affected very sensibly, for the moment the particles spread where it lies, it moves off with great agility. Jocquin observes that this quality of intoxicating fish is found in many other American plants."

A very full account of Jamaica dogwood is contained in "Hortus Jamaicensis," by John Lunan Jamaica, 1814, from which many of the other accounts evidently have been taken. Further mention is here made of the powerful narcotic effect produced upon fish by the bark. This account speaks of the fact that after being pounded very small, the bark is mixed with the water by being put into sacks, in some deep and convenient part of a river, whence it spreads itself, coloring the water of a reddish hue, etc. The account further adds this quotation from Barham, p. 52: "This tree is so well known in Jamaica that it needeth no description, being the chief and most lasting timber in America, every way as good as the English oak, and having much such a leaf; but they never grow so large. Its bark has a very strong, rank smell, and poisons fish. It makes a glorious show when in blossom, which it will be when there is not a green leaf upon it. The blossoms are very white and sweet, small, and in bunches as full as the tree can hold; afterwards come bunches of a membranous substance, looking like hops at a distance, in which is contained the seed. The bark is very astringent. I have made a decoction of this bark, which would cleanse and stop the great flux of ulcers, and make them fit to heal, and cure the mange in dogs."

In *New Remedies*, April, 1880, p. 122, occurs the following statement, which is of some interest in reference to the history, nomenclature, and habitat of the drug: The bark of this tree, particularly that of the root, is used in the West Indies for catching fish. When thrown into ponds or quiet waters, the fish become stupefied and are easily caught. Small fish are killed by it. Fish caught in this manner are eaten without hesitation, and are not considered unwholesome. An infusion of the bark of the root has also been used for cleansing foul ulcers. A tincture prepared from the root-bark is known to possess strongly diuretic properties. It is also a powerful narcotic and diaphoretic, and has enjoyed the reputation of being a specific in toothache.†

The usual method of employing the drug for catching fish is the following: At the time of full moon in April the leaves, twigs and root-bark are collected, macerated with the residue from distillation of rum or with lime-water, then transferred into baskets, and the latter dragged up and do the water, until the active principle has been extracted, which causes the fish to be stupefied and to the surface.

We have seen the name of manacá lately applied to this plant in several journals; but we not now ascertain on whose authority. In Brazil, the name manacá is applied to *Brunfelsia* Ho Benth. (= *Franciscea uniflora* Pohl.) according to B. Seemann.

In South America the bark of *piscidia carthagensis* L. is used by the natives likewise for fying fish.

†Compare Buchner's Rep., I., 215 Pharm. Central Bl., 1835, 413.

William Hamilton, M. B., H. M. L. S., in his articles published in *Pharmaceutical Journal and Transactions*, vol. IV, 1845, Nos. II and III, upon whose articles the account in Wood & Bache's *U. S. Dispensatory* is founded, gives a very interesting account of the methods adopted in Jamaica for catching fish with Jamaica dogwood. As Dr. Hamilton claims to be the first to have employed this drug as an internal remedy in therapeutics, and was induced to this action by noting its effect on fish, his account will be read with interest:

"According to the notes I made at the time, the preparation of the bark for the sport of fish poisoning is as follows: Being detached from the roots, it is mashed up with what is termed, in the West Indies, temper-lime and the low wines or lees of the still-house, and the mixture distributed into small baskets, from which it is washed gradually out by persons holding the baskets in the water from boats, slowly propelled by oars, or stationary in some small bay. Lunan describes the process somewhat differently; stating, that the bark is "pounded very small, and mixed with the water, by being put into sacks, in some deep and convenient part of the river, whence it spreads itself, coloring the water of a reddish hue, and in a few minutes the fish, that lie hidden under the rocks and banks, rise to the surface, where they float as if dead. Most of the large ones recover after a time, but the smaller fry are destroyed. Browne observes that the eel is the only fish he noticed that could not be intoxicated with the common dose, though it was sensibly affected, for the moment the particles spread where it lay, it moved off with great agility through the water; and he saw them sometimes chased to and fro in this manner for some minutes, without sustaining any injury." Lunan is silent as to the addition of the lime and the low wines, both of which are essential to the solution of the intoxicating constituent of the bark, and its diffusion through the water. As my notes were made on the spot, I can speak with the more confidence as to the mode of preparation which I witnessed, and which may, perhaps, suggest some improvement upon my form for preparing the tincture. The eels spoken of by Browne, as so sensible to the intoxicating influence of the bark, were probably the common fresh-water eel. But the large spotted sea eel, with a crested head, commonly known in Nevis by the name of the conger-eel, though widely differing from the voracious fish of that name found on our own coasts, appeared to me to be considerably affected by it; not indeed, by being stupefied, but swimming about in the phrenzy of intoxication, and rearing its crested head high above the surface, as if striving to escape from the pestilential medium. In St. Vincent, the Charaibs, as I was informed, were in the habit of taking the larger fish by a stratagem somewhat different; and seeming to imply a material difference in the chemical properties of the substance employed. Their plan was to fill the bellies of small fish caught for the purpose with a preparation of the roots of a plant called by them Wonga (?), and throw them, thus prepared, into the water to be devoured by the larger fish, whose lives were the forfeit of their rapacity, the intoxication, resulting from their prize, making them an easy prey to the fisherman. What is the plant so named, and what are its specific properties?"

The following article by James Scott, M. R. C. S., England, (published in *Therapeutic Gazette*, Jan'y, 1880 p. 9) is historically of interest. It illustrates the process of reasoning which first induced medical men to employ this powerful drug in therapeutics:

"According to my experience in Jamaica, having been nearly forty years in practice, the *Piscidia Erythrina*, Jamaica dogwood, has not been used for medicinal purposes by practitioners on the Island. I have never met one who seems to have given any attention to the plant, or who has ever considered the therapeutical properties or uses of any portion of it. All that has been known is, that the bark of the root is employed for taking fish in some of the larger rivers, into which a certain quantity is thrown with the certainty of stupefying or narcotizing a large number. No doubt it has been known to medical men that the *piscidia erythrina* is a powerful narcotic, from its having so acted, and by a process of reasoning have satisfied themselves that it is capable of exerting such an influence on the human subject, but it has not come to my knowledge that it has ever been employed by them.

I am not prepared to state the exact time, but, some years ago, my respected colleague, the late Dr. McGrath and myself, being then in charge of the public hospital and lunatic asylum of this city, it was thought desirable, in the treatment of a certain class of patients in the latter institution, to test the power of the dogwood as a sedative and narcotic. This determination was come to in consequence of the failure of morphia and other preparations of opium, as well as several known sedatives, to produce the desired effect, more particularly in those cases where there was considerable excitement or restlessness. Being early in the year when we made this resolve, it was necessary, in order to gather the roots, to wait until the month of April, the period of inflorescence, the trees being then deprived of their leaves. Of the bark of these roots a tincture was prepared according to the formula recommended by Dr. W. Hamilton, of Plymouth, England, and which was found in the appendix to the "United States Dispensatory." It may be repeated here: "Macerate an ounce of the bark in coarse powder, in four fluid ounces of rectified spirit for twenty-four hours and then filter. The dose is a fluid drachm."

The medicine in the dose suggested was prescribed for lunatics, who were in a state of excitement, and who, under the use of ordinary narcotics that were given in full and repeated doses, could obtain no sleep. When administered the effect was most remarkable. In some cases sleep was soon produced, on waking the patient was comparatively tranquil and quiet, whilst in others of a rather more severe character, it was necessary at short intervals to repeat the dose, until the narcotic effect of the medicine was manifest.

I write from memory, but the good results of this powerful and valuable narcotic were invariably apparent, and most certainly after its use for a few days there was marked tranquility of the patient, and an improvement in his condition. So valuable was this medicine considered, being the only narcotic which it was considered had, at the time, any decided effects upon lunatics, that for a series of years, and so long as Dr. McGrath and myself had charge of the lunatic asylum, fresh roots were gathered in the month of April, and the tincture was prepared in sufficient quantity to last fully for a period of twelve months, and it was uninterruptedly employed as the only narcotic, among the many in use and at command, which appeared to possess special sedative influence in allaying the excitement, and overcoming the sleeplessness of a peculiar class of lunatic patients.

I have had little experience in the use of *piscidia erythrina* internally. It is not improbable that with aconite, if so used in certain forms of neuralgia, relief might be afforded. I should be unwilling to employ it in the form of decoction or infusion on any abraded surface, either where there was cutaneous eruption or ulceration. In a case of rheumatic affection of the knee and ankle joints, where the skin was unbroken in any part, the patient's extremities having been placed and kept for a short time in strong decoction of the root, he evinced such alarming symptoms in connection with his respiration and circulation as to lead to their quick removal. Having recovered from this state it was afterwards found that he had derived considerable benefit, so far as his rheumatic complaint was concerned, but I have since been of the opinion that the dogwood, whether in the form of tincture or decoction, should be used with much caution externally."

History of the Introduction of Jamaica Dogwood by Parke, Davis & Co., as a New Therapeutic Agent.

Was the introduction of Jamaica Dogwood as a new therapeutic agent, by Parke, Davis & Co., a justifiable act? This question has many bearings. First, in relation to the prerogatives of pharmacy in these matters; and second, in relation to the drug itself. First, what is the province of Pharmacy? Pharmacy is a *science* and an *art*. The practitioners of the art of Pharmacy are known as the Profession of Pharmacy. It is the prerogative of the profession of Pharmacy to do original work in the *science* of Pharmacy, as well as to practice the *art* of Pharmacy. But what is Pharmacy? Much discrepancy exists in the definition of this branch. Dunglison says, "Pharmacy is the art which teaches the knowledge, choice, preservation, and combination of medicines. It was formerly divided into Galenical and Chymical. The former, called after Galen, embraced the operations to which medicines were subjected without chemistry; the latter, Chymical Pharmacy, comprised the preparation of medicine founded on the chymical action of their principles." H. C. Wood defines Pharmacy as "the science of preparing medicine." Wood further states that, although Pharmacy, or the science of preparing medicines, is entirely different from Therapeutics, or the science of the application of medicines to the cure of disease, it is evident that some acquaintance with the former is necessary to the correct apprehension of the latter. Further, as the basis of both these studies, must first come a knowledge of *Materia Medica*, or the substances used as medicine. Pharmacology is the general term employed to embrace these three divisions, and this classification of Pharmacy, as a branch of Pharmacology, is rapidly growing in favor. Pharmacy and Therapeutics are inseparably connected. The preparation of medicine is of no use without the application of medicine. It is the province of the Profession of Pharmacy to work in the field of Pharmacology, not with the view of treating the sick, but for the purpose of investigating the *Materia Medica* to determine the value of drugs as medicine, and the best methods of preparing them for the physician's use. Pharmacology is the "science or knowledge of drugs, or the art of preparing medicine, or a treatise on the art" (Sweringen's Dictionary of Pharmaceutical Science); and a Pharmacologist is one who is well skilled in, or writes upon drugs, or the composition and preparation of medicines, according to the same author. Pharmacology, according to our rendering of the term, and in that rendering we are scientifically upheld, is the science of the properties of drugs—pharmaceutical, therapeutical, chemical, and all other properties. It is in the department of Pharmacology, as professional Pharmacists, that we present ourselves, and claim this work as our professional province.

Wood further states as follows: "In every civilized country there is some recognized official list of drugs and their preparations, known as the Pharmacopœia. In most places, this, being prepared with the sanction of the government, partakes of the nature of a law, but in the United States, conformity to it depends upon the voluntary actions of the professions of Medicine and Pharmacy, by a representative convention of which it was originally prepared and is decennially revised. The United States Pharmacopœia is divided into three portions: A primary and a secondary *materia medica* list, and a chapter on preparations, with directions for their manufacture. The primary list contains medicines whose reputation is believed to be assured; the secondary list, those still on trial, or those which experience has shown to be not altogether valueless, but yet of little importance. It is evident that a knowledge of the official or recognized preparation, of their general mode of manufacture, and of their strength is essential to the therapist."

Our work in pharmacology is for the benefit of the U. S. Pharmacopœia, to which standard we conform. In the introduction of Jamaica dogwood, a drug which may prove itself of greater value than many remedies official in the list of the Pharmacopœia, our work in Pharmacology may be seen. Only careful clinical tests, extended in time, in the hands of experienced observers, can determine the exact worth of this new narcotic, but that we were justified in its introduction as a therapeutic agent, reference to its history will show: first, it was long known as a powerful drug before it was employed in the treatment of the sick; second, the nature of its activities had been determined in the peculiar narcotic effect produced on fish; third, it was reasonable to suppose that a somewhat similar effect would be produced on man from the well-known fact that the physiological effects of drugs on man can be in a measure determined by their effects on animals; fourth, it is an acknowledged fact that the results of such tests fully justify further experimentation with drugs to determine their therapeutic value by employing them under proper restrictions to treat the sick; fifth, from the great activity of Jamaica dogwood, from the nature of that activity, from the favorable results of its use in the hands of Dr. Hamilton, who describes it as a narcotic, relieving pain, and producing sleep, and without the unpleasant sensations which follow a dose of opium, we have good and sufficient reasons to believe that *this drug possesses peculiar virtues of great value*.

We, therefore, feel ourselves fully justified in placing Jamaica dogwood before the medical profession of the United States for trial as to its general merits as a narcotic and anti-spasmodic, but more especially as a substitute for opium as an anodyne. And we particularly request physicians to test it carefully in practice and report results for publication in the medical press.

Our Own Work in Connection with Jamaica Dogwood.

With reference to our identification with the introduction of Jamaica dogwood to the medical profession, we would state that our attention was called to the value of this drug in therapeutics by a correspondent in the year 1878. Reference was made for information upon the subject to the appendix of the U. S. Dispensary (Wood & Bache's), 13th edition, page 1734. Acting upon the information afforded us we took the ground that this drug was of sufficient interest, as a powerful therapeutic agent, to warrant our placing the same before the medical profession for purposes of investigation. We, therefore, opened correspondence with the United States consul and with business men of Kingston but without favorable results. We were, therefore, finally compelled, in 1879, to dispatch one of our own representatives, to the Island of Jamaica, who remained upon that island for a period of several months and succeeded in obtaining for us a supply of the bark of the root of the *piscidia erythrina*. In entrusting this mission to a personal representative, as customary with us, we selected one well fitted by his familiarity with the science of botany, medicine, and pharmacy to enable him, not only properly to locate the tree botanically, but also to afford us such reliable information as could be obtained with regard to the therapeutics of the drug from the various sources afforded upon the Island.

In placing the drug before the medical profession we were guided by our usual policy. In the first place a fluid extract of the drug was manufactured after a formula resulting from the investigations of our chemical department. The menstruum adopted for the manufacture of this fluid extract will be found in this report under the head of "Pharmaceutical Preparations." Specimen bottles of this fluid extract were distributed gratuitously not only to the public hospitals and dispensaries of the large commercial centers, but also to individual practitioners throughout the United States who were interested in the subject. We then asked from our medical friends in the hospitals and private practice reports as to their experience, favorable or unfavorable, in the use of the drug, promising to place this information properly compiled, in printed form, before the medical profession. In order that we might hasten the result of these investigations for the benefit of all concerned, we enlisted the assistance of the distinguished physiologist, Dr. Ott, of Easton, Pennsylvania, who investigated this drug physiologically, publishing the results of his investigation as cited elsewhere in this circular. At our request and at our expense Mrs. Louisa Reed Stowell, of the University of Michigan, investigated the drug microscopically, and the result of her work was duly published in medical literature. And as a final result of our efforts in this direction we offer to the medical profession this circular, which has been compiled and elaborated at the expense of considerable time and trouble, as a report of our scientific department.

Our System for Scientific Work.

For the purpose of facilitating our investigations of new drugs we have adopted a scientific system devised by F. E. Stewart, Ph. G., M. D., of New York, who is connected with our scientific department. The classification of this system is illustrated by this report on Jamaica dogwood. Our object is to secure full and accurate information under each head represented by the classification so that our report may finally represent the full scientific history of each drug investigated by us. The report will

contain not only our own work upon this drug, but the summarized work of others, and will, therefore, be a complete index to all the scientific work done by all who may have devoted attention to the pursuit of knowledge relating to it. Of course in the case of a new drug reports are at first meagre and principally from unscientific sources, but time is its own corrective in this matter, and as the drug becomes better known from scientific investigation in the hands of competent observers, knowledge will gradually be perfected.

Commerce.—The imports of Jamaica dogwood into the United States are principally from the Island of Jamaica, from which comes our supply. As we have been to great expense in procuring the drug, owing to the necessity we have been under of sending to Jamaica for it, the first cost has been large, and the price correspondingly high. But as the demand increases price decreases proportionately; and when the drug finally reaches its true level as an article of commerce, cost will be reduced to its lowest terms.

Description.—Description by C. W. Hansen, M. D., in *New Preparations* (Sep. 29, 1879, p. 22):

"I have before me a piece of the bark of the root; it is about three inches wide, slightly curved from side to side, and about one-eighth of an inch in thickness. Color light brown, with a slight greenish tinge. The epidermis is covered with flattened protuberances, resembling warts, of a lighter color than the surrounding base. On drying, the epidermis becomes deciduous, exposing the mesophloem, which is lighter color and wrinkled longitudinally. The inner portion consists of tough fibres, disposed in thin layers. When broken, it emits the strong disagreeable odor of opium, or perhaps more closely that of propylamine."

Description of A. C. Nagle, in *Druggists' Circular*, February, 1881, p. 18:

"The bark of the root is the part used in medicine, and as found in the market is in quills and flat pieces. The former are often from one-half to an inch in diameter, and generally destitute of the suberous tissue; while the latter are from one to two inches in diameter, slightly curved, and about a quarter of an inch or less in thickness (as seen in cut.) The bark between the inner and outer surface is of a greenish resinous hue, breaks transversely with a short fibrous fracture."



Description by Louisa Reed Stowell, M. S., Assistant in Microscopical Botany in the University of Michigan:

"The bark of commerce appears in pieces of two to four inches in length, and from one to two inches wide, and about one-eighth of an inch in thickness. The outer surface of some of the pieces is of dark grey brown, while others are of a yellow brown, with no shade of grey present. The bark is frequently studded with flattened protuberances of a lighter color than the surrounding cork.

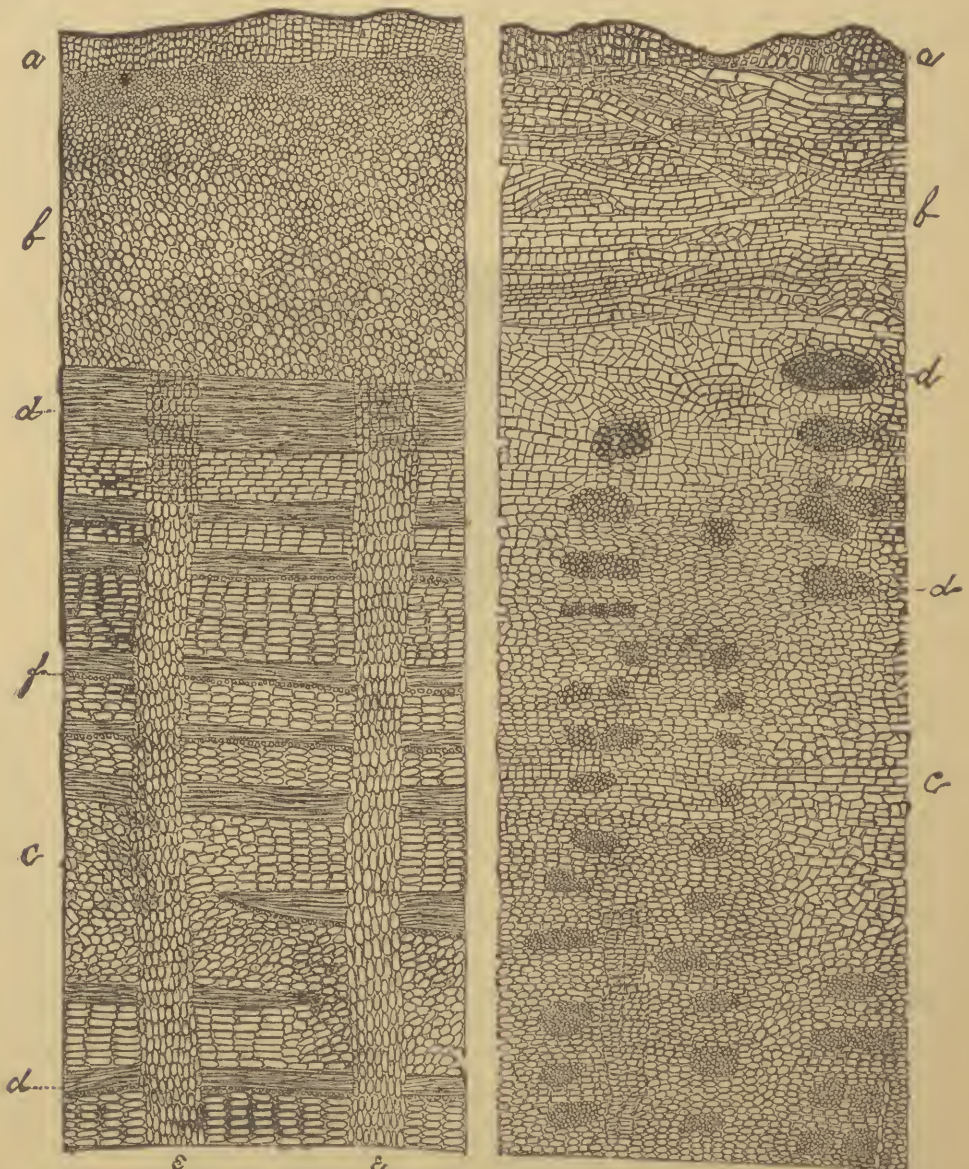
The central part of the bark is much lighter colored, and when wet or freshly broken, is of a peculiar blue-green color.

The inner part of the bark is of a dark brown color, and very fibrous. It has a strong disagreeable odor of opium when broken into pieces. It is strongly acrimonious, and produces a burning sensation in the mouth and pharynx."

Microscopical Structure.—The following is a microscopical description by Louisa Reed Stowell, M. S., Assistant in Microscopical Botany in the University of Michigan:

"The cork or outer bark (see fig. 1. a), is composed of about 15 rows of thin-walled, regular, parenchymatous cells, brick-shaped, and arranged radially; namely, the length of the cell standing parallel with the radius. They are generally empty. The middle or green layer of the bark (b) is composed of thin-walled, long, oval cells. In the longitudinal section they are arranged tangentially, namely, the longest diameter of the cells is at right angles with the radius. They average about 1-250 of an

inch in length, and about one-fourth as wide, containing clear white chlorophyll bodies, and dead protoplasm and chlorophyll. Occasionally a crystal is found, as if by accident. In the cross section the cells are oval or round, and of irregular sizes. Sometimes oil cells are present. The cell walls themselves seem to have absorbed coloring matter, for they are not a clear white as is usually the case with cellulose. The inner layer of the bark, or the liber layer (c), constitutes the principal part of the bark, frequently being four-fifths of the whole bark. It is composed principally of regular parenchymatous cells of nearly equal diameters, and with thin walls. These cells are quite regular toward the inner surface of the bark, and grow more irregular toward the outer edge of this layer. Some of the cells show pitted marks, which are deposits of cellulose on the cell walls. Bundles of liber fibre are arranged in concentric rings through this part of the bark, hence its name, liber layer. On a cross section (see fig. 1, b), these fibres are composed of hexagonal cells, with very thick walls, having only a spot or a central line for an opening. On a longitudinal section the fibres are frequently 1-10 of an inch in length. It is these long cells of the liber fibre that give the fibrous structure to the inside of the bark. On either side of the bundles of liber fibre are rows of polyhedral crystals of calcium oxalate. Medullary rays composed of regular brick-shaped cells, similar to those of the cork, are seen traversing this layer. This part of the bark contains, besides the liber and crystals of calcium or slate, some oil ducts or resin glands—apparently different in no respect from the surrounding cells—some small scattered laticiferous tissue and separate oil drops.



JAMAICA DOGWOOD—A, Longitudinal Section. B, Cross Section. a, outer bark or cork. b, middle bark or green layer. c, inner bark or liber layer. d, liber bundles. e, medullary rays. f, crystals. x 10 diameters.

Chemical Composition.—The active principles contained in Jamaica dogwood are not yet satisfactorily determined. The following reference to a resinoid Piscidin, is all the investigation yet reported in relation to the chemical composition of the drug. Nagle refers to a resinoid as follows: "Its medicinal virtues can only be extracted with alcohol, it owing its activity to the resinoid *Piscidin*, which is generally obtained as a yellowish amorphous powder. I endeavored to make a few experiments with an alcoholic solution of the resinoid (one grain to the drachm), with a view of demonstrating its applicability as a narcotic. I am indebted to Mr. Krauter for his valuable aid." Further reports on the chemical composition of Jamaica dogwood will be made by our chemical department.

Uses.—In Jamaica the bark is used to poison fish, and the wood is valuable as timber piles for wharves, and for building purposes. In medicine the bark of the root is used as a narcotic.

Adulterations and Substitutions.—Food and drugs are always liable to adulterations and sophistications of various kinds. This danger is greater in proportions to the value of the pure article, and the demand for it. We have reason for supposing that certain rival manufacturers have substituted preparations of other drugs in place of the true Jamaica dogwood. This is comparatively easy to accomplish, owing to the "opium smell" of the 'true drug. The substitution of opium preparations for those of Jamaica dogwood cannot be too strongly condemned. The simple test for meconic acid should always be resorted to in suspected cases of this kind. The substitution of other closely allied drugs of narcotic properties is also reprehensible, for only by testing the genuine drug can the true virtues of *piscidia erythrina* ever be scientifically determined. We have several times refused, lately, quantities of Jamaica dogwood of poor quality and inert. These lots seem to be taken from dead roots, or those that have been long in the water; in each case they were found water-soaked, and devoid of medicinal activity. As these lots of bark are still seeking a market, it is important that care should be taken by the trade in supplying all orders for it. The bark of the tree may also be substituted for the bark of the root.

Pharmaceutical Preparations and Doses.—The only preparation of Jamaica dogwood which has yet been placed before the profession by us, is a fluid extract made by macerating the powdered bark in a menstruum of alcohol sp. gr. of 0.8628 at 60° F., and then submitting the whole to hydraulic pressure of 200 tons, further exhausting by fresh menstruum and re-expression, until the drug is completely exhausted, and the fluid extract thus produced of the standard strength of fluid extracts adopted by the Pharmacopœia—one troy ounce of the drug to one fluid ounce of finished preparation.—Each minim of the fluid extract therefore represents a grain of the drug.

Dose.—Jamaica dogwood should be given, like quinine, "for effect." Cases are reported where the dose on the label has failed in producing the peculiar action of the drug, and in other cases untoward, and even alarming symptoms have followed its administration. The discrepancy of reports from private and hospital practice is especially striking. A very different class of cases are usually treated in hospitals—broken down patients, contaminated with various constitutional poisons. Here reports would seem to indicate that much larger doses are necessary for effect. Idiosyncrasy should also be taken into consideration, for narcotics sometimes produce most unfortunate effects on that account. It is important and interesting, both in determining the proper dose of this drug and in the study of its physiological and therapeutic action, that each physician should report the result of his experience in the use of it. For this purpose the columns of the *Therapeutic Gazette* are always open.

Antagonists and Incompatibles.—These antagonists and incompatibles are not yet determined. We await the reports of further investigation.

Synergists.—The same remarks as above in relation to the antagonists and incompatibilities of the drug apply in the case of its synergists. Reports on these matters are respectfully solicited for publication in the *Therapeutic Gazette*.

Toxicology.—*Untoward Effect of Jamaica Dogwood.*—Communicated to the *Therapeutic Gazette*.—I write you to notify you of a little experience I had with a sample of Jamaica dogwood. The case was of neuralgia (hemicrania)—severe pains with nausea. Thinking the medicine indicated, as it certainly was according to directions, I directed my mother, who was the one troubled, to take half a teaspoonful in water. This was rejected and the dose was repeated. In about 20 minutes she had the toxic effects on the whole system. Spasms supervened and continued with but slight intermission for about an hour, when they began to grow lighter. The paralysis of diaphragm continuing, I was considerably alarmed, and called in Dr. S. B. Chase, President of the Iowa State Medical Association. Difficulty of breathing continued about six hours. She has now fully recovered.

My reason for reporting this case is to ascertain if this is the usual action of the drug, and whether the dose recommended is not too large. I gave the minimum dose without any

hesitancy, thinking that certainly that would not give any bad result. As it is, I am now afraid of the medicine. My mother has taken no other medicine except the Dogwood, and the untoward symptoms are clearly traceable to this drug. F. M. Moore, M. D., in *Therapeutic Gazette*.

Antidote.—Idiosyncrasy exists in many families regarding the action of narcotics. The smallest dose of opium in some cases is followed by unpleasant and often alarming results. The above case is of interest in this connection more from the idiosyncrasy displayed than in the study of the toxic effects of the drug. Much larger doses than that given on the label have been given and *with no apparent effect whatever*. Hoping for fuller reports from the profession under this head we submit the above. As an antidote in cases of poisoning from this drug the treatment suggested by Wood in narcotic poisoning is applicable. "There is now sufficient evidence to show that apomorphia is a safe and reliable emetic, possessed of advantages which have already been sufficiently dwelt upon. In *narcotic poisoning* there is no reason why it should not be given hypodermically whilst sulphate of zinc or some mechanical emetic is exhibited by the mouth." *Wood's Materia Medica, Therapeutics and Toxicology*, p. 417.

Physiological Action.—The following account of the physiological action of Jamaica dogwood was furnished after careful experiment in the hands of Isaac Ott, A. M., M. D., late lecturer on Experimental Physiology, University of Pennsylvania (Philadelphia.)

Dr. Ott says that this drug has been stated by medical men to be a direct sedative producing narcotic effects which are refreshing, and not followed, like opium, by hyperæmia of the brain, nausea and general nervous disturbance. It is said to be of value in bronchitis, asthma, nervous coughs, writer's cramp, spasms of muscles due to functional causes, chorea, tetanus, and especially in toothache, to relieve pain. It is also reputed to be diaphoretic and diuretic. With these facts put forth, I have thought it to be a matter of general interest to the profession to study its physiological action. Any drug which gives rest and sleep to the suffering patients in this active world is of considerable value. So far I have been unable to find any one who would work out the active principle contained in the bark. I was forced to add to an ounce of the fluid extract of the bark an equal quantity of warm water and evaporate the whole down to about five drachms. The temperature of evaporation did not exceed 175° F. The object was to get rid of the alcohol which would confuse the results. I shall allude to the product obtained by evaporation as an infusion. The fluid extract used was reddish in color, like wine, with an odor greatly resembling that of laudanum. In these experiments it must be remembered that I am working at the effects of the active principle of piscidia plus many other organic principles. Therapeutically, the results are quite applicable.

GENERAL ACTION.—Experiment I. Rabbit, at 2:20 P. M., received twelve drops of the fluid extract of piscidia subcutaneously. It caused frequent respiration, inco-ordination, dilatation of the pupils. 2:30 P. M., twelve drops of the extract was given, pupils greatly dilated; 2:38 P. M., twelve drops given, respirations frequent, has his sensibility very much blunted; 2:52 P. M., twelve drops given; 3 P. M., twenty-four drops given.

3:35 P. M., lies sprawling, unable to move; the strongest pinching of sensitive parts does not cause him to move, labored respiration, lies sleeping; 4:12 P. M., asphyxia ensues, which quickly contracts the dilated pupil; heart beating one hundred and sixty-eight per minute; saliva flows; 4:23 P. M., death; abdomen opened, bowels quiet, heart beating.

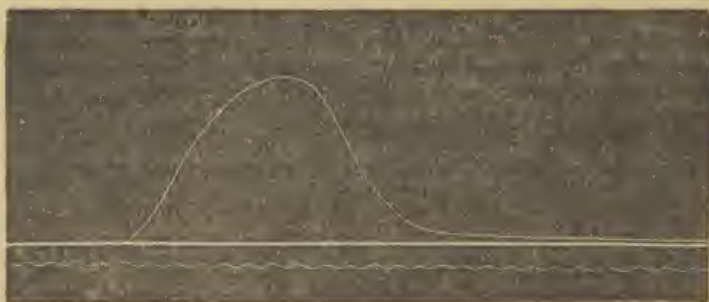


FIG. 1.

Exp. 2.—Frog, at 2:55 P. M., received twelve drops of piscidia subcutaneously; sits quietly, then hops about; soon assumes a squatting posture. 3:03 P. M., can be handled without any effort on his part to escape; 3:07 P. M., pupils dilated, sensibility blunted, seems asleep; 3:40 P. M., twelve drops of the infusion given; 3:53, is unable to hop, upon pinching or a loud noise, tetanus supervenes, as it also does spontaneously; 4:10 P. M., does not make any reflex movement upon pinching; 4:24 P. M., frog dead. Sciatic nerve is irritable at three hundred and sixty-three millimetres, dubois inductorium.

Experiments on warm-blooded animals demonstrate that it first increases the respiration, produces inco-ordination, dilatation of the pupil, blunted sensibility, narcotism, increase of salivary secretion, and slowness of the heart and death by asphyxia. In cold-blooded animals it produces bluntness

of sensibility, dilatation of the pupil, narcotism, inability to move, followed by stage of hyperæsthesia and tetanus, which ends in a loss of reflex movement and death. The motor nerves are not paralyzed.

SENSORY NERVES.—Exp. 3.—Frog, at 4.45 P. M. had his left limb ligated, the sciatic being excluded. Twenty-four drops of the infusion of piscidia subcutaneously; 4.50 P. M., both posterior extremities equally insentive in pinching.

Exp. 4.—Frog, at 4.45 P. M., received twenty-four drops of infusion of piscidia subcutaneously; the abdominal aorta was previously ligated; 5.15 P. M., has lost all power of co-ordination, lies with extremities extended; sensibility in front and behind the ligature is so much blunted that he perceives no irritation of any extremity; when allowed to fall from a small height makes feeble movements.

Exp. 5.—Frog at 6.18 P. M., received under the skin of the lower jaw twelve drops of the infusion of piscidia; the spinal arteries coming from the abdominal aorta were severed; 7.07 P. M., upon irritating the anterior extremities makes lively movements to escape. As to the bluntness of sensibility, it is not produced by the drug affecting the peripheral ends of the nerves. The experiments just detailed quite conclusively prove that the cause of bluntness is central, and not peripheral in origin.

SPINAL CORD.—To decide if the tetanus observed was due to spinal excitation or cranial, the cord was divided just below the medulla oblongata.

Exp. 6.—Frog, received about three drops of the fluid extract of piscidia subcutaneously at 10 A. M.; cord divided just below the medulla oblongata. It was afterwards found that the convulsive state persisted.

REFLEX ACTION.—To study reflex activity in frogs poisoned by piscidia, I employed the method of Türk. A weak solution of sulphuric acid was made into which the foot of the frog was dipped, and the time the foot remained in it before withdrawal noted by a metronome beating one hundred times per minute. The foot was always washed off with water immediately after the reflex movement occurred.

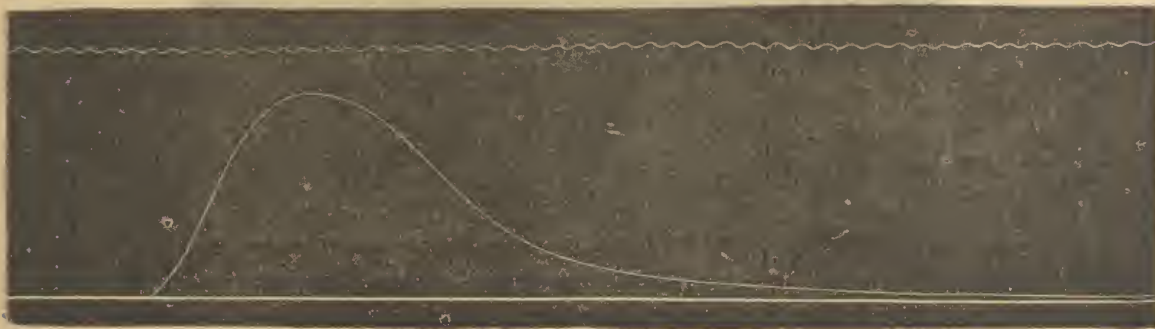


FIG. 2.

Exp. 7.—Frog, cerebrum ablated.

TIME.	METRONOME BEATS.
4.50 P. M.....	4
Infus. piscidiæ, twelve drops.	
4.55 P. M.....	6
5.00 P. M.....	4
5.05 P. M.....	4
5.10 P. M.....	5
5.20 P. M.....	6
5.30 P. M. No reflex action at 60.	
5.35 P. M.....	12
5.45 P. M.....	9
6.07 P. M.....	5

The above experiment proves that it at first gradually decreases reflex action, which afterwards again rises in activity to that observed in the normal state. That this fall is not due to circulatory changes is proved by a subsequent observation, in which it will be shown that the heart, although decreased in activity, does not fall to an extent sufficient to so greatly depress reflex action. The fall must then be attributed to some action on the nervous system. The next experiment still further confirms these views:

Exp. 8.—Frog, cerebrum ablated:

TIME.	METRONOME BEATS.
3.42 P. M.	5
3.44 P. M. Infus. piscidiæ, twelve drops.	
3.45 P. M.	6
3.50 P. M.	8
3.55 P. M.	10
4.00 P. M.	12
4.05 P. M.	10
4.06 P. M. Infus. piscidiæ, twelve drops.	
4.15 P. M.	10
4.30 P. M.	8
4.32 P. M. Medulla severed.	
4.34 P. M.	4

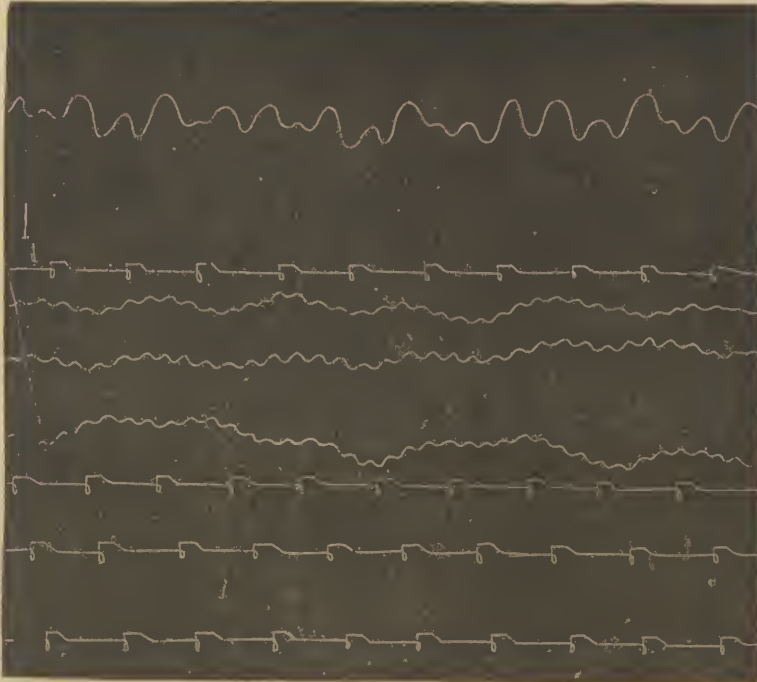


FIG. 3.

Exp. 9.—Frog, medulla severed.

TIME.	METRONOME BEATS.
10.25 A. M.	5
10.26 A. M. Infus. piscidiæ, twelve drops.	
10.30 A. M.	6
10.40 A. M.	5
10.45 A. M.	7
11.00 A. M.	5
11.20 A. M.	4
11.30 A. M.	5
12.15 P. M.	5

When the medulla is severed then reflex actions are not greatly interfered with. There is a slight fall, followed by a slight raise, but by no means comparable to that observed in the previous observations. Now, in making a section below the medulla, then the centres of Setschenow are removed. Now, they have the power to depress reflex activity in the spinal cord. So it must be inferred from these experiments that the fall of reflex activity is due to a stimulation of the inhibitory centres situated in the corpora quadrigemina and optic thalami. The rise of activity is not due to the paralysis, because when the rise commenced, a section of the cord at the medulla caused the spinal activity to rise as in the normal state after a section of that nature.

CIRCULATION.—To study the effect on the circulation I employed frogs and rabbits. The poison in the rabbits was injected through the jugular towards the heart. The blood-pressure was taken in the carotid by means of Ludwig's canula and his kymographion. The pulse and pressure are noted for periods of fifteen seconds.

Exp. 10.—Frog, sternum divided, heart exposed.

TIME.	HEART BEAT.
6.40 P. M.	60
6.45 P. M. Infus. piscidiæ, twelve drops.	
6.50 P. M.	64
7.10 P. M.	54
7.25 P. M.	54
8.30 P. M.	30

This experiment shows that in the frog piscidia first increases and then decreases the heart beat.

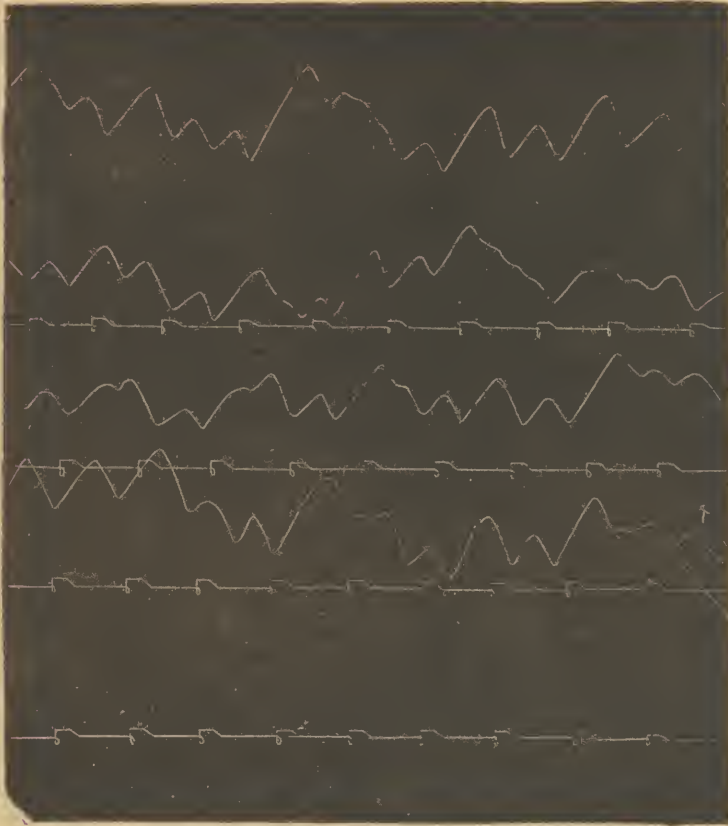


FIG. 4.

Exp. 11.—Rabbit, carotid and jugular prepared.

TIME.	PULSE.	PRESSURE.
2. 5.00 P. M.	66	64
Infus. piscidiæ, twelve drops.		
2. 5.15 P. M.	63	66
2. 5.30 P. M.	63	66
2. 5.45 P. M.	66	64
2. 6.45 P. M.	65	64
2. 7.45 P. M.	64	64
2. 8.45 P. M.	63	58
2. 9.45 P. M.	62	60
2.10.45 P. M.	63	56
2.11.45 P. M.	65	42

In the rabbit the action of piscidia on the pulse is not very marked, there being a slight decrease in the number of the beats. The arterial tension is at first slightly increased, after which it falls considerably.

Exp. 12.—Rabbit, vagi divided:

TIME.	PULSE.	PRESSURE.
2.14.45 P. M.....	57	66
Infus. piscidia, twelve drops.		
2.15.00 P. M.....	57	70
2.15.15 P. M.....	57	66
2.15.30 P. M.....	59	62
2.15.45 P. M.....	59	59
2.16.00 P. M.....	56	54
2.17.00 P. M.....	56	54
2.18.00 P. M.....	57	25
2.20.20 P. M.....	57	44

This experiment proves that, after section of the pneumogastrics, the pulse rate is not materially altered, whilst the pressure rises and falls as before. That piscidia does not paralyze the pneumogastrics is proved by the following experiment:

Exp. 13.—Rabbit, vagus prepared. A long needle pushed through the walls of the chest into the heart. Twelve drops of piscidia infusion were given by the jugular. The vagus was, about an hour afterwards, irritated by a strong faradic-current, but arrest of the heart ensued.

Exp. 13.—Rabbit. All the cardiac nerves in the neck were divided—cord divided between atlas and occiput:

TIME.	PULSE.	PRESSURE.
2.20.00 P. M.....	58	22
Infus. piscidia, 12 drops.		
2.20.15 P. M.....	56	18
2.20.30 P. M.....	57	18
2.20.45 P. M.....	56	14
2.21.15 P. M.....	58	8
2.24.00 P. M.....	60	6

This experiment proves that the increase of pressure, heretofore observed, is due so stimulation of the monarchical vaso-motor center seated in the medulla pons varolii. It is seen the pressure did not rise after section of the cord. The pulse also, as previously observed, did not exhibit any marked changes.

Exp. 14.—Rabbit. Vagi paralyzed by atropia, tested by faradic current:

TIME.	PULSE.	PRESSURE.
2.20.00 P. M.....	56	56
Infus. piscidia, 12 drops.		
2.20.15 P. M.....	55	60
2.20.30 P. M.....	56	64
2.20.45 P. M.....	59	64
2.21.45 P. M.....	58	64
2.23.45 P. M.....	58	62
2.24.00 P. M.....	57	56

When atropia is used to paralyze the pneumogastrics, the pulse still exhibits the same indisposition to greatly change its rapidity. The pressure of blood in the artery is first increased and then decreased, as before.

ACTION ON MAN.—Exp. 16.—A half teaspoonful of the fluid extract was taken; soon began to feel drowsy, pupil dilated. In about three hours the effect passed off, and I felt as well as ever, having no nausea or the peculiar shaking up of the nerves that ensue after opium.

Exp. 17.—At 6.20 P. M. I took a teaspoonful of the fluid extract. Pulse 72, respiration 16. When swallowed it gave a pungent, burning sensation in the throat and stomach, succeeded by a feeling of warmth over the whole body. 6.40 P. M.—Pulse 62, respiration 16. Arterial tension increased. 7.26 P. M.—Pulse 72, respiration 16. Salivation and sweating, pupils dilated. 8.45 P. M.—Pulse 72, respiration 17. Feel quite sleepy, disturbance of vision, itching sensation in the skin; the narcotic feeling kept up till about 10 P. M.

As well known, in opium are found those medicinal virtues which give to the physician the power to rapidly relieve and cure suffering humanity, and at the same time to produce a beatific intoxication. The effect of this drug, like other pleasures, has its pains, such as nausea, constipation, and a generally disordered nervous system. In this drug piscidia, we have a less tolerable intoxication, and the disagreeable after-effects of opium left out. The sleep of piscidia resembles in feeling that produced by large doses of bromide of potassium.

It is evident from the preceding experiments that in piscidia we have a drug capable of producing death by arrest of the respiratory apparatus. Frogs seldom recover from a moderate dose of the drug. The following conclusions may be drawn:

1. It is narcotic to frogs, rabbits and men.
2. It does not affect the irritability or the motor nerves.
3. It does not attack the peripheral ends of the sensory nerves.
4. It reduces reflex action by a stimulant action on the centers of Setschenow.

5. That it produces a tetanoid state by a stimulant action on the spinal cord, and not by a paralysis of Setschenow's centers.
6. It dilates the pupil, which dilation passes into a state of contraction upon the supervention of asphyxia.
7. It is a salivator.
8. It increases the secretion of the skin.
9. It reduces the frequency of the pulse.
10. It increases arterial tension by stimulation of the monarchical vaso-motor center.
11. This increase of pressure is soon succeeded by a fall, due to a weakening of the heart itself.

If the action of piscidia is compared with that of chloral, it is found that the former has no dangerous action on the heart like the latter, nor such an energetic action like the latter upon the respiratory organ.

Compared with atropia, piscidia, unlike the former, does not paralyze the motor nerves; it does not paralyze the chorda tympani; it does not arrest the sudoral secretion; it does not paralyze the pneumogastrics, and does not elevate greatly the arterial tension, but like it dilates the pupil. Compared with morphia, like it, it produces sleep, heightened excitability, spinal convulsions, general paralysis and stimulation of the vaso-motor centre; unlike it, it dilates the pupil. In the use of this drug I would like to add the caution that its surface is pleasure and its depth death.

The following description of physiological action is from an article by A. C. Nagle, of Philadelphia, Pa., in the *Druggists Circular*, February, 1881, p. 18.

TIME, P. M.	HEART BEATS per Minute.	RESPIRATIONS per Minute.	TEMP.
8:15 Pupil dilated.....	151	76	105°
8:20 Fifteen minims given.....			
8:25	154	81	106½°
8:30 Pupils very much dilated, and salivation produced.....	159	86	108°
8:35 Ten minims given.....			
8:40 Sits sleeping; sensibility very much obtunded.....	156	Very irregular.	108½°
8:45	141	91	104°
9:00 Fifteen minims given.....	137	Irregular.	106°
9:05 The strongest pinching does not cause him to move.....	126	73	103°
9:10 Labored respiration.....	121	66	101°
9:15 Hind legs are paralyzed; lies sprawling, unable to move.....	105	43	98°
9:20	106	36	92°
9:25	98	16	91°
9:30	98	9	89°

9.45 P. M.—Animation suspended, the dilated pupil suddenly contracts, and death follows. Bowels opened immediately afterward, and heart found beating. Piscidin has similar effects upon a man, when taken internally, causing a hot flush over the whole body, producing dilatation of the pupils, general diaphoresis, and slight salivation; by increasing the dose, the eyes look wild and staring, labored breathing results, the pulse decreases; this is followed by disturbance of vision, and merging into a state of obliviousness, which lasts for several hours. The *rationale* of its action upon animals may be expressed in the following propositions:

1. It is a narcotic to higher as well as lower animals.
2. It dilates the pupil.
3. It causes an increase of the respiration, followed by a sudden decrease.
4. Produces salivation and profuse diaphoresis.
5. Reduces the action of the heart, and has little effect upon the temperature, producing general paralysis and death by asphyxia.

The action of morphia and piscidin are somewhat similar; like morphia it produces somnolence and paralysis; unlike it, it dilates the pupil. In morphia poisoning the eyes are contracted and excited; under the piscidin they become dilated and staring. It is evident, beyond a doubt, that piscidia bark is a powerful drug in assuaging nervous pain and producing sleep. Its action seems to be principally over the motor nerves. It has been used in cases of spinal irritation and chronic cough, where opium could not be prescribed. But I think a more thorough therapeutic investigation would be highly beneficial.

Therapeutic Progress.—In the present state of therapeutical knowledge, it is impossible to make a classification free from defects, or devise a system for original investigation, not open to more or less objection. The learned work of Stillé is based on the empirical method, and the more modern and scientific work of H. C. Wood is based upon the physiological method. Both of these methods have special advantages. The physiological method, however, is considered the best, possessing the advantage of being scientific; but many empirical facts are well founded in professional experience, and therefore can not be disregarded. The classification which we have adopted is devised for the

purpose of first determining, empirically, the therapeutic value of the drug, by gleaning the results of experience in the use of it by the profession in private and hospital practice; and secondly, by comparing these results with each other, and with the results of experiments on animals, and thus to determine the worth of the drug by the more scientific scheme of physiological therapeutics.

What are the Therapeutic Properties of Jamaica Dogwood?—They are not yet determined. That the drug is a powerful one, and possesses narcotic properties, is abundantly proved from its action on fish, and the experiments of Ott and Nagle, as well as abundant testimony from physicians, including Dr. Hamilton, who first introduced it as a therapeutic agent, and the later researches of more modern observers. But the word narcotic is not specially descriptive, being only a general term. Drugs not known to produce these peculiar effects on the system, by totally unlike action on the nerves, have hitherto been classified as narcotics. But the more scientific classification of Wood divides the old classification, and presents a much better scheme for study. Jamaica Dogwood evidently possesses peculiar properties of its own that may finally place it under one or more of the following classes of medicinal agents; and it may contain one or more active principles, which isolated, will explain its double action. What then is Jamaica Dogwood? Under the broad scope embraced by the classes, Cardiac Stimulants, Cardiac Sedatives, Anti-spasmodics, Analgesics, Mydriatics, Excito-motors and Depresso-motors, it should be carefully studied, for most all, if not every one of these different effects, have been claimed for it.

Reports on Jamaica Dogwood from Private Practice.

The following cases stand entirely on their own merits. *Physicians should always report the dose given in each instance.*

1.

Report of S. A. Butterfield, M. D., of Indianapolis, Ind., in *Therapeutic Gazette*, p. 89, vol. 2 (March, 1881.)

NEURALGIAS.—I cannot refrain from giving my experience with *piscidia erythrina*, as I have found it more effective in certain neuralgic affections than any anodyne I ever used, its great recommendation being that it leaves none of the disagreeable or bad effects of opium and its alkaloids. In facial neuralgia and common tooth-ache, given by the mouth, it seems to be nearly a specific. As a relief to pain, its use seems to be confined to cases of idiopathic neuralgia.

The following is an illustrative case: Since our return from a five months' visit, during last fall and winter, in Southern California, where my wife nearly lost her life from typhoid fever, she has been more or less constantly troubled with a gastro-enteralgia, which dieting would not prevent, and which opiates would not temporarily relieve. In addition, the opiates so constipated the bowels and impaired appetite (always deficient), that she would suffer long rather than use morphia. Finally I began giving her three times a day, a teaspoonful of fluid extract Jamaica Dogwood, when to our great surprise and joy, in two days she was entirely relieved, appetite improved, and her health and comfort were better than for months.

My experience leads me to favor the administration of full doses of this drug to secure its characteristic anodyne effects. The remedy is an important one, and I hope the profession will give it a fair trial, and report their experience as to dose and effects.

2.

Report of J. L. Furber, M. D., Appanoose, Kansas, in *Therapeutic Gazette*, p. 133, vol. 2 (April,

My old teacher, Prof. H. S. Potter, used to tell his students to test new remedies upon themselves first, so I tested Jamaica Dogwood upon myself, thoroughly, and was greatly pleased with its effects. It has no narcotic property whatever, that I can discover, but is a pure anodyne, or nerve sedative, and I use it in all cases where an anodyne is needed, particularly combined frequently with gelsemium in the distracting pains of neuralgia. I have also found it useful in dysmenorrhœa.

3.

Report of I. J. M. Goss, A. M., M. D., Marietta, Ga., in *Therapeutic Gazette*, p. 261, vol. 1 (Sept., 1880.)

This is one of the remedies recently introduced, which has proved valuable. I have used it as soporific, for which it is one of the most certainly and kindly acting articles of that class. It produces refreshing sleep, from which my patients awake without any unpleasant effect whatever. This commends it to the profession. As a nervous sedative, I have used it in cases of neuralgia and tooth-ache, with the most prompt success. It acts upon the nerve centers in a peculiar manner. It does not produce cerebral hyperæmia, like opium is well known to do. I find that it requires from 5 to 15 doses to produce sound sleep.

4.

Report of T. C. Brannon, M. D., Brannon's Store, Texas, in *Therapeutic Gazette*, p. 261, vol. 1 (Sept., 1880.)

I have used the solid extract made into pills with powdered liquorice, in neuralgia pains, in cases of uterine displacement, unsettled pains, etc., with much benefit to my patients thus far. I regard the drug as one of the most valuable in the hands of the profession, and would ask all physicians to overcome the prejudice against it on account of its being a "new remedy," and give it a trial.

5.

Report of J. C. Roberts, M. D., Pulaski, Tenn., p. 330, vol. 2 (Sept., 1881.)

The third case, occurring in my brother, a paralytic, suffering intense neuralgic pain, was more protracted, but in three hours from the first dose of eucalyptus, he experienced more relief than from several days' treatment with other leading remedies, Jamaica dogwood relieved him of his neuralgia and and gave him sleep.

6.

Report of E. H. Harris, M. D., Grinnell, Iowa, in *Therapeutic Gazette*, p. 331, vol. 1 (Nov., 1880.)

Last week there came under my care an inveterate case of neuralgia, which has been treated by many, very many physicians, to no purpose. I found the lady in the commencement of one of her periodic seizures, and the assertion of both her husband and herself that she could not be relieved short of several days, discouraged me from attempting anything by way of curative treatment during the paroxysm. I, however, put her on Jamaica dogwood, and agreeably surprised both the patient and myself, by securing perfect relief from the pain in twenty minutes. She fell asleep soon after and had a good night's rest. The continued use of the remedy has kept her easy since the first, a something which never before happened in her case, the pain always continuing at its height during the paroxysm.

I purpose trying nitro-glycerine in this case between the paroxysms, with a view to breaking them up, and will report results.

7.

Report of F. T. Montague, M. D., Crawfordsville, Ind., in *Therapeutic Gazette*, p. 321, vol. 1 (Nov., 1880.)

Some months since I received a sample of the Jamaica dogwood, which I gave a fair trial in a case of facial neuralgia, and found it to work charmingly. The patient was a lady 50 years of age. I found the patient with her hand to her face suffering most agonizing pain, as she had been for some days and every day growing worse. I gave her as follows:

℞ Bromide potass., ʒss.
Fluid ext. Jamaica dogwood, ʒij
Syrup, q. s. ad. ʒjv.

M. Sig., one teaspoonful every hour until four doses were taken. She was entirely relieved. The pain returned periodically every afternoon. I ordered the same dose repeated during three days, the pain each day growing lighter, and on the fourth day she was entirely free from pain, and has had no return since,—six weeks ago. She had a similar attack a year ago in which she tells me her physician kept her entirely under the influence of morphia for six weeks, until she wore the disease out.

I have found the Jamaica dogwood a most valuable anodyne, relieving pain without the unpleasant after-results that we find with morphia or opium, and I most heartily endorse all that has been said of its therapeutic value.

8.

Report of W. M. Lewis, M. D., Greensbury, Ky., in *Therapeutic Gazette*, p. 297, vol. 1 (Oct., 1880.)

I have used fluid extract Jamaica Dogwood in a few cases, and like it very much. In one case of very severe neuralgia, in which the 5th was affected, two drachms effected a cure. Have used it with fine success in sick headache. In a case of pure insomnia, it brought about the most satisfactory results. Am glad Jamaica Dogwood is added to our list of remedies, and believe it to be a long felt need.

9.

Report of M. Ford, M. D., in *Louisville Medical News*.

At your request I give you my experience with Jamaica Dogwood. I have used it in but two cases, both cranial neuralgia in nervous, delicate females, æt. 24 and 27 years. Both patients are subject to very obstinate attacks of neuralgia, for which I have frequently prescribed for some years. Miss B. was suffering several months ago with an attack more severe than usual, from which for days she got only partial relief, as she could not bear opium, and no sleep except from full doses of chloral and potassium bromide combined. A small bottle of the fluid extract of Jamaica Dogwood was left in my office just at that time by the agent of Messrs. Parke, Davis & Co., and I determined to try it on this case. I took it to my patient next morning—she was still suffering—and gave her two drachms, with the assurance that it would relieve her, and directed her to take two drachms more at night, and she would have a comfortable night's rest. When I called next day she said the pain ceased in about half an hour after she took the medicine, and she had slept better that night than she had for weeks. I saw nothing

more of her, until two days after I met her on the street. She said her neuralgia had not returned, that she had been perfectly well since I saw her, except an attack of sick headache, to which she was subject; and that the medicine I had given relieved her neuralgia so quick she thought it would cure her head also, and took a dose (two drachms). How did it act? I asked. "Well, I went right off to sleep, and did not wake until next morning, when I felt as fresh and comfortable as I ever did."

In the other case the same dose (two drachms) was given, with the same result; the neuralgia ceased in about an hour, and she has had no return since, which in both cases is a longer interval free from neuralgia than they have had for years.

10.

Report of J. M. Blackerby, M. D., Milford, Ky., in *Therapeutic Gazette*, p. 159, vol. 1 (June 1880.)

February 25th I was called to see Mrs. D., æt. 36, suffering from a long and severe attack of sciatica. She had tried many remedies to alleviate her suffering, but had found no relief from anything taken, except while under the influence of morphia, which drug invariably left her with sick stomach and great nausea and itching. I at once determined to test the virtues of piscidia erythrina in her case, to relieve the pain and procure rest. Therefore prescribed:

℞ Piscidia erythrina, 3 ss.
Aqua, 3 iij

Mix, and take one draught on retiring for the night, at which hour I saw her. The same quantity to be repeated in one hour. Eight o'clock next morning I called and found the lady resting quietly and free from pain; says she has passed the first comfortable night she had passed for several weeks; no pain, no sickness of the stomach, and a fair appetite for her breakfast. I now prescribed and applied adhesive blisters three-fourths of an inch in diameter and every two inches along the sciatic nerve, commencing at the hip joint and tracing the nerve, to the number of 16. These, after opening the blisters the next day, I let fall off in the course of 8 to 12 days. Directed the continuance of the piscidia as the pain required relief, and left my patient. Before the blisters fell off my patient was walking around, and in a week more was doing her house work. I do not wish to be understood as saying that the piscidia was in this case the agent that cured the sciatica, only that she obtained such relief from her suffering as all other agents failed to give. I have treated many cases of sciatica in the same manner, that is, with the blisters, but always some preparation of opium to relieve the pain, but I do claim that I have never, in many years of practice, met so complete success and consequent satisfaction, as I obtained in this case, both as to the relief of pain and the absence of any of the unpleasant sequelæ following the use of opium or its salts. I have watched this patient almost daily since her recovery, as she lives next door to me, and I am unable to see any unfavorable constitutional effects from the use of the drug. What makes the case more interesting is the fact that the lady is the wife of our druggist, and was hitherto the patient of an old physician of long standing in this place. The remedy was entirely new to the druggist, and he expressed great wonder and delight at its prompt and satisfactory action in the case, and immediately ordered a pound of the drug.

I am highly pleased with its effects in this case, and also in several cases of other diseases, especially where there is pain and great restlessness. Making all due allowance for the extravagant praise and enthusiasm of many of my patients, I am gratified to find a remedy that I can sometimes, at least, use without detriment to my patients, and with credit to myself. I think Jamaica dogwood, indeed, a desideratum in the practice of medicine, and am not satisfied to be without it in any case. Not expecting it to suit all cases, as no remedy will, I intend, as opportunity offers, to still further test its virtues, and report results.

11.

Report of Thomas F. Wood, M. D., Wilmington, N. C., in *Therapeutic Gazette*, p. 291, vol. 1 (Oct., 1880.)

I have been using Jamaica dogwood, and its effects have far surpassed my expectations. I had a friend who was suffering from an old wound of the femur, and who after suffering a long course of unabated pain, had found his only comfort in hypodermic doses of morphia. As time wore on he found that the opium habit was about to overcome him. Aroused by his own personal conviction of the fact, he discarded opiates in every shape, and of course went through the agony usual to so abrupt an abstraction of opium. I suggested the new remedy, Jamaica dogwood, with some misgiving because of the unenthusiastic statement of its virtues, but so marked was its effect in procuring sleep, that the specimen was returned to my office with the inquiry if I did not suspect that laudanum entered into its composition.

A few nights after this a meeting of our county medical association was held, and a bottle of the fluid extract was passed around. Without exception in ten members all pronounced it laudanum.

Bearing this suspicion in mind, the next day I made the following tests: Took one drachm of laudanum and one drachm of extract Jamaica dogwood, added water, and then added a solution of sugar of lead. It is needless to follow the steps of a familiar process. I got in the case of the opium meconic acid, and none from the dogwood.

I am now using the dogwood with increased confidence, notwithstanding the fact that my chemistry was not that of the skilled workman.

12.

Report of J. J. Mulheron, M D., Detroit, Mich, in *Therapeutic Gazette*, p. 155, vol. 1 (June, 1880.)

I secured last fall a sample of the fluid extract of Jamaica dogwood for the purpose of testing its alleged narcotic and anodyne properties. The claims made for the new drug were based on reports from men whose veracity it would be unfair to question, and whose ability to form opinions as to its merits was attested both by the position they occupied as practitioners, and by the institutions on whose diplomas they practiced. I honor the conservative physician; he is the pillar of medicine; but the desire, through practical clinical tests, to add to the conservatism, while the refusal to accord a trial to the new is too frequently not an evidence of conservatism so much as a mark of prejudice.

The first case in which I administered Jamaica dogwood was that of a Mrs. B., æt. 32, and married eight years but without issue. She came under my care a few months previously suffering from pelvic cellulitis, from which she recovered without suppuration, hot water injections and opium suppositories being the principal agents employed. The inflammation was usually severe and extensive, and Dr. I. S. Hamilton, of Tecumseh, who had treated the lady in a previous attack, was sent for to see her with me. Previous to this attack Mrs. B. had had severe attacks of ovarian neuralgia. After her recovery from the inflammation the neuralgia occurred more frequently and with increased intensity. Morphia in large doses hypodermically administered was necessary to relieve the excruciating pain. The after effects of the morphia were, however, so disagreeable as to cause a wish for another anodyne, and I determined to try Jamaica dogwood, which I gave in twenty drop doses of the fluid extract of the drug to be repeated every two hours until relief followed. The first dose allayed the pain very materially, and shortly after the second dose it entirely disappeared. This was the history of repeated attacks which she suffered during the course of constitutional treatment, of iron, strychnine and quinine, on which she was placed and which was probably instrumental in the subsequent immunity from attacks.

Case 2. Mrs. M. had two months previously suffered from an attack of hemiplegia. The occasion of my being sent for was the annoying, wearing pain she experienced in her spine, located through the extent of the dorsal region. Because of its excitant effects in her case, morphia was not desirable, and chloral hydrate and bromide of potassium had been tried without benefit. I ordered Jamaica dogwood in commencing doses of ten drops of the fluid extract, but though perseveringly administered, it disturbed the stomach, occasioning vomiting, to such an extent as to necessitate its discontinuance without having secured from it any relief.

Case 3. J. B. suffered from facial neuralgia. Twenty drop doses gave him as prompt relief as he had previously experienced from the hypodermic use of morphia.

Case 4, occurred in my own person. I had suffered a good deal of pain from a carious tooth, and had lost a night's rest through the tormentor. The pain suddenly left in the morning while I was on my way to the dentist's, and as it did not recur during the day, I temporarily changed my determination to have the tooth extracted. At nightfall, however, the pain returned with redoubled violence. Having a sample of the fluid extract of Jamaica dogwood in my office, I saturated a piece of cotton wool with it and applied it to the cavity. The relief was almost immediate, and lasted through the night.

The above notes are given, not by any means as sufficient evidence to establish the claims which others have made for this drug, but merely with the object of assuring others that Jamaica dogwood is an article possessed of certain anodyne properties, and as a possible justification for them to accord it a trial. In the two cases of internal administration in which it acted so promptly and successfully there was not the slightest unpleasant after effect. Whether the disturbance of the stomach as caused in the case in which it was found necessary to discontinue it, was due to any inherent property of the drug, that single case is not sufficient to determine. That the drug is an improvement on opium as far as the after effects are concerned would seem probable from these two cases. But it will, of course require more than these cases to establish even this claim, and a great many more to establish its claim to rivalry with opium as an anodyne.

13.

Report of W. H. Rouse, M. D., Detroit, Mich., in *Therapeutic Gazette*, p. 121, vol. 1 (May, 1880.)

The materia medica contains many valuable remedies for the relief of suffering. Opium, with its salts, stands at the head of the list, yet valuable as it is there are certain conditions of the system in which it would not be advisable to give this narcotic to ease pain. Under these circumstances belladonna, or some other of this class, might be substituted; but in lingering diseases, such as cancer, the changes from one to another of the narcotics may be tried and re-tried till the whole list has been exhausted, and the patient and friends still clamor for something else to soothe pain. In these extreme cases the physician welcomes new and valuable additions to his resources.

Some months ago a patient, suffering from cancer, came under my care. She was a woman of nervous temperament, and suffered excessively. Opiates had been used long and faithfully in what

might be regarded as excessive doses, two teaspoonfuls at bedtime being about the usual quantity requisite to give tolerable ease. The bowels were constipated, moving once in about eight to fifteen days, unless stimulated by cathartics. The obstruction of the bowels aggravated the pain. Various other narcotics were substituted for the opium, but the results were not satisfactory. Codeia, one of the salts of opium, proved to be one of the best; but still the patient and friends asked for something else to ease. Having pretty nearly exhausted my resources, I was induced to try the effects of Jamaica dogwood, a medicine which has been in use for a number of years in the West Indies, but comparatively new to the physicians in this locality. The results were so favorable that the medicine has since been used with considerable confidence.

Judging from the effects of Jamaica dogwood, (*piscidia erythrina*.) in this and other cases, considerable reliance may be placed in it as a narcotic of very prompt action. It seems to act especially on the nervous system, its effects being often noticeable within five minutes. Its action is not so lasting as that of opium, and hence the doses should be repeated at shorter intervals. No obvious change in the excretions has been detected, nor deleterious secondary results, as with opium. Hence it can be used in congestion of the brain, and other nervous diseases, also in cases in which modification of the excretions is not advisable. The pulse seems but little affected; but in a few cases decreased action of the heart was observed, possibly due to the quiet obtained rather than from any cardiac sedative action of the drug used. It is quite probable paralysis might result from excessive doses.

Piscidia erythrina has been used in the form of tincture, and of the fluid extract. Like other medicines of this class, the dose varies very much, depending upon the condition of the patient. I have given from twenty to sixty minims of the fluid extract every three hours, and so far have observed no ill-effects from the teaspoonful doses. It is better, however, to give smaller doses and repeat as circumstances require, until the action of the medicine is better understood.

It may not be uninteresting to report a few other cases in which this medicine has been used. My first case, as stated above, was one of cancer of the womb, a disease sufficiently severe to test the qualification of any drug of this class. Though it failed to give complete relief in doses deemed judicious, the results compared favorably with those of any other anodyne used, with less of disagreeable secondary effects.

In rheumatism and neuralgia it is of great service. A man *æt.* 35, was suffering from acute articular rheumatism, affecting principally the knee and hip joints. He was unable to turn in bed without great suffering. Fifteen minims of the fluid extract Jamaica dogwood, every two to eight hours, kept him quite comfortable till the disease yielded to the ordinary remedies.

Mr. A. B., a fleshy man, *æt.* 67, had a rather severe attack of neuralgia of the heart. Gave him half a teaspoonful of the fluid extract of *piscidia erythrina*, and in ten minutes most of the pain and disagreeable symptoms had subsided. Other remedies completed the cure. In this case the prompt action of this drug was particularly noticeable.

Mr. C. D., a laboring man, somewhat addicted to the use of liquor, was suffering severe pain in the bowels, apparently due to indiscretion in regard to food and drinks. One dose gave prompt relief, but it was found necessary to repeat the dose every two hours until the bowels could be relieved by a cathartic. This was a case in which the preparations of opium would have been eminently serviceable were it not for their peculiar action on the bowels, impeding rather than expediting the removal of irritating matters.

The prompt action of this remedy renders it valuable in relieving toothache, and in mitigating the suffering during the extraction of teeth in cases in which, for any cause, anæsthetics are not admissible:

Mrs. E. F. came into my office and requested me to extract several teeth. She, though a large and apparently healthy woman, was greatly excited, and refused to even have the teeth examined. She took half a teaspoonful of the fluid extract of dogwood, rubbed the gums with it, and then quietly submitted to the extraction of four teeth. She reported very little suffering.

I have since this, in a number of cases, caused patients to rub their gums with this medicine a few minutes before extracting a tooth. They all state that the pain is much less than without anything. I cannot tell how much of this is due to imagination, for it is well known that imagination may do much for a nervous person.

Whatever may be the future status of this new claimant for professional favor, the results obtained seem to warrant a recommendation for future careful observation. In it may be found therapeutic virtues not yet recorded.

14.

Report of F. T. Montague, M. D., Crawfordsville, Ind., in *Therapeutic Gazette*, Nov., 1880, p. 321.

Some months since I received a sample of the Jamaica dogwood, which I gave a fair trial in a case of facial neuralgia, and found it to work charmingly. The patient was a lady 50 years of age. I found the patient with her hand to her face suffering most agonizing pain, as she had been for some days and every day growing worse. I gave her as follows:

R Bromide potass, $\frac{3}{4}$ ss.
Fl. ext. Jamaica dogwood, $\frac{3}{4}$ j.
Syrup, q. s. ad. $\frac{3}{4}$ jv.

M. Sig., one teaspoonful every hour until four doses were taken, and she was entirely relieved. The pain returned periodically every afternoon. I ordered the same dose repeated during three days, the pain each day growing lighter, and on the fourth day she was entirely free from pain, and has had no return since—six weeks ago. She had a similar attack a year ago, in which she tells me her physician kept her entirely under the influence of morphia for six weeks, until she wore the disease out.

I have found the Jamaica dogwood a most valuable anodyne, relieving pain without the unpleasant after-results that we find with morphia or opium, and I most heartily endorse all that has been said of its therapeutic value.

15.

Report of J. F. Fitzsimmons, M. D., Bucyrus, Ohio, in *Therapeutic Gazette*, March, 1881, p. 89.

My attention was attracted to Jamaica dogwood by an article in the December number of the *Gazette* from the pen of Dr. R. W. Alexander, of Parkersburg, W. Va., in which he gave an account of his experience with the new remedy in whooping cough. From the success attending its use in his hands, I have been influenced to try it in two cases in my own family.

My two children, æt. 6 and 8 years have had whooping cough for about eight weeks. The little girl's case has been unusually severe, and complicated with catarrhal pneumonia, gastric irritation, indigestion, constipation, prostration and irritability of the nervous system. The little boy's case has been much milder and uncomplicated, but at times the spasms of cough have been severe enough to produce vomiting.

I gave Jamaica dogwood a good, honest trial, commencing with twelve drops in syrup tolu every two or three hours, increasing the dose steadily to thirty-five and forty drops. Using glycerine instead of tolu, at first, I was hopeful and encouraged to continue in its use, believing it did in some measure control the violence of the cough. But more experience and observation convinced me that it would not do to depend on it, even in the extra large doses that I used. That the medicine was genuine I have no doubt, as it was from the reliable firm of Parke, Davis & Co.

Having recorded its failure in two cases that were under my immediate observation, and in my own family, where I had every opportunity to watch and note its effects, I should not close this brief account and summarily declare Jamaica dogwood inert and useless, for I have used it in one case wherein it proved decidedly useful in relieving if not entirely curing. A patient, an aged lady who had suffered for four years, from migraine, and frequent attacks of neuralgia, weakened and much reduced from long suffering with asthma and chronic bronchial irritation: I commenced to use the Jamaica dogwood in this case for the purpose of relieving insomnia. I commenced with thirty drops at bed time. The patient most positively stated that her sleep was more quiet, and several hours more was had, the first night after taking it. The dose was increased to nearly one teaspoonful at bed time, and in about a week she expressed herself satisfied. Sleep and rest were nature's great restoratives in this case, and increase of strength naturally followed. But the pain was not entirely subdued, and something more was demanded. As the patient had a few years before contracted malarial fever, and had had occasional attacks of chills and fever afterward, it occurred to me that quinia, or some preparation of bark, might be profitably employed. Four grains of cinchonidia at 9 and 11 A. M., was given regularly for several weeks, and the result was entirely satisfactory to patient and doctor.

16.

Report of S. M. Whistler, M. D., Wilson, Kansas, in *Therapeutic Gazette*, July, 1881, p. 260.

Having had a sample phial of Jamaica dogwood left me it was some time before a case presented with an especial indication for a trial of the drug. The first case was one of acute articular rheumatism in which, owing to an idiosyncrasy of the patient, it was impossible to administer morphia for the relief of the pain even though that alkaloid was combined with atropia. The Jamaica dogwood given answered the purpose so admirably as to prepossess me very strongly in its favor as an anodyne. In another case of capillary bronchitis I was also so much gratified with its action that I now keep a supply of the drug regularly on hand.

17.

Report of J. A. Larrabee, M. D., Louisville, Ky., in *Therapeutic Gazette*, August, 1880, p. 226.

I regard Jamaica dogwood as a decided success. The tests to which I have subjected it were such as to thoroughly try it. I have employed it in several cases of inveterate and long-standing bronchial irritation, and in cases of thoracic pain due to nervous debility and excessive lactation. Any physician who has had cases of this nature to treat, (and few practitioners miss them) will have cause for gratitude after placing them on Jamaica dogwood. Opium from its after effects, and owing to frequent idiosyncrasies on the part of the patient, as well as from the liability of contracting the opium habit to which its employment lays the patient open, is an article which all conscientious practitioners dislike to administer in these cases. But until Jamaica dogwood was introduced, opium, in spite of its drawbacks, had frequently to be given.

I have also employed the drug in several cases of most severe hemicrania, tic douloureux, painful muscular spasms and rheumatism, in all of which I have been very much pleased with its action.

18.

Report of W. F. Sharrer, M. D., Rockford, Ind., in *Therapeutic Gazette*, November, 1880, p. 321.

Miss W., æt. 16 years, was attacked Saturday night, Oct. 2, 1880, with severe colicky pains in the womb. A hot hop poultice was applied, but no relief obtained, and the pains extended to her limbs. Headache also supervened and painful "cramps," until about 3 A. M., of the next day, when the young lady was taken with a spasm. The family treated her with household remedies till 9 or 10 o'clock A. M., when a messenger was despatched for me with the information that the young lady was dying. On arriving at the house I found the patient in intense agony, severe pain in head and back and colicky pains all through abdomen. The spasmodic contractions of the arms and limbs were the worst I ever saw. I had a bottle of fluid extract of Jamaica dogwood in my pocket and it struck me at once to test the effect of the drug in this case. I administered one-half drachm (3ss), diluted, and in ten minutes I saw it was going to have a good effect. I then gave 3ss more, and in twenty minutes longer relaxation had taken place, and the pains had nearly all gone. I then gave 3ss more and in twenty minutes all spasmodic difficulties and pains had ceased and my patient was sleeping a sound and sweet sleep, from which she awoke some eight hours later feeling quite well, considering the severe attack. She came to my office yesterday (October 10th) looking as fresh as a peach, and stating that she had not had any pains since I visited her on the 4th, and that the flow had come on next day quite easily and without pain.

I have used Jamaica dogwood in several other cases during the past week, in which there was severe neuralgia, with very satisfactory results.

19.

Report from *Chicago Medical Review*, Déc. 5, 1880.

We have found the fluid extract of Jamaica dogwood (*piscidia erythrina*) an excellent substitute for either opium or chloral in controlling the nervous irritability dependent upon the preliminary contractions of the uterus in labor. It should be given in twenty to thirty drop doses, repeated hourly.

20.

Report of E. S. Richardson, M. D., Reed City, Michigan, in *Therapeutic Gazette*, Oct., 1880, p. 291.

The following brief report of results from the use of Jamaica dogwood in a case of cholera morbus may not be without interest:

This morning Mr. B., a gunsmith on his way from his residence to his shop, was taken suddenly with griping pains in the abdomen. He hastened to my office, was unable to get farther than the doorway when he fell prostrated upon the steps. Before I had time to enquire into the cause emesis began, which with the other symptoms caused me to diagnose cholera morbus. Morphine had always been my preference in this disease as the most prompt and efficient remedy, but as I had none at hand I administered a drachm of fluid extract Jamaica dogwood, from a sample vial which had been presented me. I gave this dose immediately after the first emesis. The relief was prompt and decided, the only remnant of the trouble being some slight abdominal uneasiness. In twenty minutes I gave another fluid drachm. There was now no more symptoms of the disease, and in half an hour after the second dose he left the office feeling well.

The recovery was attended by none of the disagreeable after effects attending the use of morphine. This fact, together with the prompt relief given and the fact that the drug was given without any of the hesitation which one feels in giving decided doses of morphia, lest untoward results occur, has made me regard Jamaica dogwood as a decidedly valuable addition to our list of remedies.

21.

Report of C. G. Eastabrook, M. D., Binghampton, N. Y., in *New Preparations*, Nov. 1879, p. 231.

I have used fluid extract Jamaica dogwood in two cases of spinal irritation, and in one marked case of neurasthenia, both attended with almost constant pain. For the relief of this symptom various sedatives have been used, and with the exception of opium, all have failed. But its disagreeable after-effects have made its administration a dread to the sufferers. Having recently received a sample bottle of extract Jamaica dogwood, I divided it between the cases, and am happy to report that it thus far supplies the place of the opium most admirably, without constipating, or, in fact, being followed by any of the disagreeable symptoms that are the bane of the latter

22.

Report of F. E. Daniel, M. D., Jackson, Miss., in *Therapeutic Gazette*, March, 1880, p. 71.

A gentleman came into my office and asked me to prescribe an anodyne for him, as he was suffering pain from a recent fracture of the radius, stating that opiates did not agree with him. I ordered fluid extract *piscidia erythrina* in half drachm doses. In two days he returned and asked me if I knew the remedy was good for a cough. He stated he had been for several weeks suffering with a troublesome dry cough and great dyspnoea, and he found on taking my prescription for pain which it perfectly relieved, also great relief to his cough, which, he stated, had become loose and expectoration

easy, and that the medicine produced a feeling of warmth and comfort in the bronchi. He had at one time been a practising physician, and he compared the effects of the medicine on the lungs and bronchi to that of cubebs; he asked the name of the drug, and requested the gentleman in charge of my dispensary to put up double the quantity I had previously prescribed. So, in addition to its admirable properties as an anodyne and hypnotic, it seems to be a stimulating expectorant; and I have since that time been in the habit of prescribing it as an ingredient in cough mixtures, to which I find it a valuable addition.

23.

Report of Coleman Rogers, M. D., in *Louisville Medical News*.

Not long since I was in attendance upon a young woman, then in the seventh month of her first pregnancy. There seemed to be in her case strong indications of premature labor, which in no way yielded to large and frequently-repeated doses of chloral and the bromides. The labor pains yielded promptly to opiate enemata. She ceased to have trouble on that score, but sometime afterward she began to pass restless and sleepless nights, awaking in the morning jaded and unrefreshed, and passing through the ensuing day. These symptoms were not due to pain or distress of any kind. It was a case of insomnia, pure and simple. For this condition of things chloral and the bromides in large doses were called into requisition without the least favorable effect. Resort was again had to opiates. While under their effect she slept at night, but awoke in the morning feeling utterly miserable, under the influence as she was, and as she continued to be during the day, of all the disagreeable effects of the drug. The nausea, constipation, thirst, loss of appetite, etc., got to be so unendurable that she preferred the restless nights to being thus harassed by opium. At this juncture I determined to put her upon the fluid extract of Jamaica dogwood, as prepared and offered by Messrs. Parke, Davis & Co., of Detroit. The effect was simply magical. Under drachm doses of this agent, repeated once or twice during the night, she began to sleep quietly, awaking in the morning, refreshed and comfortable, without a single untoward symptom. There was an absence of nausea, thirst, constipation, etc., and altogether she was wonderfully improved. At the present writing she is well and in splendid spirits, resorting occasionally to the dogwood extract, with a continuance of its good effects and an entire absence of any that are bad. In one or two other cases of insomnia I have made use of the dogwood extract with the same good result. It is true that so small a number of cases as those I have reported afford no substantial or positive proof as to the merits of a drug. They only give presumptive evidence as to its good effects, and induce us to give it further trial.

As remarked before, it is too common a practice with physicians to make use of opium upon slight provocation. It is too dangerous a drug in its immediate and ulterior effects thus to be tampered with. In minor ailments—in the lesser degrees of pain—there are other agents much less fraught with harm, such as chloral, the bromides and other nervines. Such is the place to which we would assign the fluid extract of dogwood with great confidence as to its good results.

For pure insomnia—for restlessness at night, not connected with the pain and anguish incident to organic disease, but existing as a symptom by itself and of itself—opium should never be prescribed. It is in just such cases that the opium habit is contracted. Arising, as the cases of insomnia do, from controllable causes, it is better to temporize with them than by one means beget a habit which is really a perpetual torment and a living death. Insomnia as an independent symptom is one of the inevitable consequences of the age in which we live. It is the unrest of physical and mental worry and overwork. What hygiene cannot altogether accomplish can be assisted by agents of the milder nervine and anodyne class. We have high hopes that in the latter the extract of dogwood will in the future hold a prominent place. Whether it will prove to be a pure hypnotic in the sense that opium is, remains to be seen. If it should happen that it possesses the good effects of opium minus its bad ones, medical art has indeed a precious agent in dogwood. The cases I have reported above seem to give us some grounds to hope that this has at length been found.

24.

Report of Robert R. Lawrence, M. D., Watervliet, Michigan, in *Therapeutic Gazette*, February, 1881, p. 50.

As an anodyne, and particularly as a hypnotic, this drug certainly has qualities which entitle it to rank next to opium, while it possesses the very great advantage over "the juice of the poppy" of not causing any of those disturbances which are so great an objection to the use of the latter.—the cephalalgia, nausea, restlessness, disorders of the digestion, etc. *Piscidia erythrina* is no longer an experiment; its properties are well defined, and it deserves to take rank with the standard remedies.

25.

Report of I. J. M. Goss, A. M., M. D., Marietta, Ga., in *Therapeutic Gazette*, July, 1880, p. 194.

After thorough trial of this new remedy, I am now prepared to make a report to the profession. And I must say that many who are writing about it, are mistaken in regard to it. I have not found it narcotic, but simply soporific, and calmative to the nervous system. It produces profound and refresh-

ing sleep without any tendency to produce congestion of the brain as opium does. I had a case of asthma, with great erethism and sleeplessness, in which I gave five drops of fluid extract at night, and the patient fell asleep, and slept for several hours, and then awakened without any nausea or other unpleasant effects. I regard it as a great boon to poor suffering humanity. I was suffering intensely with an excruciating pain arising in the right jaw, from a decayed tooth, and after trying various remedies to relieve the pain, and failing, then wet a bit of cotton in the fluid extract and applied to the gum, and received relief in a short time. The introduction of Jamaica dogwood supplies a desideratum in medicine.

26.

Report of D. R. Greenlee, M. D., in *New Preparations*, November, 1879, p. 282.

I have tried fluid extract Jamaica dogwood; am now fully satisfied in regard to its anodyne effects; my experience has been somewhat varied; it will quiet when there is not much pain, but will not take the place of morphine in my opinion; I think, however, it is a valuable remedy. I found it put a quietus upon a chronic cough in two cases, which annoyed the patients so much as to keep them awake most of the night. Shall continue the remedy and report to you in the future.

27.

Report of W. R. Alexander, Parksburg, W. Va., in *Therapeutic Gazette*, Dec., 1880, p. 354.

There is no disease in which the treatment of the present day is more unsatisfactory than whooping cough. In fact, there is but a single medicine which the profession is agreed that there is reliable efficacy in. That medicine is belladonna, which is both dangerous in its administration, and not always satisfactory in its results; at least, such has been my experience. Pertussis being epidemic last fall, as well as at the present time in this city and surrounding country, I was led to make some experiments in the treatment of it with the fluid extract Jamaica dogwood, my attention having been arrested by the prompt and peculiar effect of the dogwood in coughs and bronchial troubles generally, in which I had many opportunities of prescribing it. The effect in whooping cough was quite satisfactory, and it proved quite a specific in a number of cases. I now order it for a patient with as much confidence in its prompt results as I do quinine in malarial affections. It seems to control the reflex irritation of the branches of the pneumogastric nerves, which produces the spasms; and it cannot be excelled in pulmonary complications. Of course, where it is necessary, the little patient's strength must be sustained by stimulants, nourishment, etc. I give it to children at all ages and in any stage of the fever. The initial catarrh, the conclusive and the final catarrhal stages were all decidedly benefited, the spasmodic effects being in many cases aborted. It can be administered in any expectorant syrup or mixture.

28.

Report of F. H. Little, M. D., in *Therapeutic Gazette*, October, 1880, p. 297.

Some time since I secured a sample of fluid extract Jamaica dogwood, and having a patient who could not take opium in any size dose, or form, I had an excellent opportunity of testing its virtues. To say that I was pleased with its action hardly expresses it. Taken in from a half to one drachm doses, it has never failed to remove pain, and that too, without any unpleasant after effect; not even making the patient the least drowsy. As a substitute for opium it surpasses anything I know of.

29.

Report of F. E. Daniel, M. D., Jackson, Miss., in *Therapeutic Gazette*, May, 1880, p. 125.

I recently gave a half ounce vial to one of our most distinguished senators, who applied to me for an opiate to make him sleep. In consequence of great mental labor and anxiety, he had been unable to sleep for several nights. He had just delivered a masterpiece of oratory in the senate, for which he was being warmly applauded throughout the country. He reported to me next day that the medicine had worked "like a charm;" fell asleep in 15 minutes; slept all night, and awoke refreshed and feeling not the slightest inconvenience.

My experience in the use of this remedy, though still rather limited, is sufficient to make it a favorite. I give it in half drachm doses, and find its effects decidedly hypnotic and anodyne, without any of the objections which attach to opiates.

30.

Report of Rev. H. Brodnax, M. D., Plantersville, La., in *Therapeutic Gazette*, April, 1881, p. 137.

I find that this drug is very much like opium in its effects on the nervous system, except that it does not constipate the bowels or act as a stimulant. It quiets almost immediately, does not leave any sick stomach afterward, and does not interfere with the action of calomel. In obstetric cases it

acts in the same way—does not interfere with the progress of the labor, but rather helps it by dulling sensibility, like chloroform somewhat. It is almost a cure for sciatica. I tried it in my own family first, and it acted so well that I have used it frequently since in several families, and with uniform success. In a case of piles, very severe, I used it in conjunction with sugar of lead, topically, and was surprised at the prompt relief from pain. It is a fine thing in that complaint, as it can be used internally or topically, without interfering with other remedies.

Reports from Hospital Practice.

31.

Report of J. A. Larrabee, M. D., Professor of Materia Medica and Therapeutics, and Diseases of Children, in the Hospital College of Medicine, Louisville, Ky., in *Therapeutic Gazette*, July, 1880, p. 226:

I have also employed the drug in several cases of severe hemicrania, tic douloureux, painful muscular spasms and rheumatism, in all of which I have been very much pleased with its action.

32.

Report of E. C. Helm, M. D., Byron, Ill., in *Therapeutic Gazette*, May, 1880, p. 130.

During my incumbency of the position of resident physician of Mercy Hospital, Chicago, I received for trial a number of samples of new remedies. From the trial which I had opportunity to accord them, I would submit the following summary of results:

I regard cascara sagrada, berberis aquifolium, viburnum prunifolium, grindelia robusta, yerba santa and Jamaica dogwood as drugs whose addition to our materia medica will prove of great benefit. Certainly my experience with them tallies very closely with that of those who have written most approvingly of them.

Less has been written of Jamaica dogwood, however, than of any of the others mentioned, and I would submit my experience of it more in detail: I employed it with success in several cases in which opium could not be tolerated. The necessity for an anodyne in these cases arose, respectively, from the pain following an operation, from idiopathic inflammation, and from neuralgia. The relief in each case was prompt and decided and was followed by refreshing sleep. I should regard its anodyne properties, however, rather less powerful than those of opium although its hypnotic action is more decided. I believe it will take rank between chloral and opium for its anodyne and hypnotic properties, while it is devoid of objections peculiar to each of these drugs.

33.

Report by Robert T. Edes, M. D., Professor of Materia Medica, Harvard University, in *Therapeutic Gazette*, September, 1881, p. 329.

Case 1. John C. Enlarged glands in right groin, giving rise to severe crural neuralgia. A small man, much run down. Improving. Has been using morphia subcutaneously.

April 27. R Dogwood,* 3 ss.

28th. Slept fairly well.

29th. Did not sleep well; increased dose to 3 ¼.

May 1. Has had no relief from Dogwood; increased to 3 j at night.

2nd. Did not sleep well.

4th. Slept well last night.

5th. Slept well last night *without any medicine*.

Case 2. Kate M., æt. 30. Headache very persistent. Is probably, to say the least, an exaggerator of her sufferings; has taken almost everything.

April 27th. R Dogwood 3 ss, at 8 P. M.; slept pretty well; repeated next night with similar result.

29. R Dogwood 3 j, repeated for three days.

May 2nd. Says she had an uncomfortable feeling after taking Dogwood, which lasted one half hour; after that her pain was relieved.

May 4th. Headache very bad last night; omitted Dogwood; fluid extract of tonga was given for eleven days without relief; nothing else did her any good, and she was discharged without relief, at her own request.

Case 3. Bernard M. Cardiac. May 19th. R Dogwood 3 ss last night. Did not sleep.

21st. R Dogwood 3 ss last night. Slept well. 22nd, repeated the dose. Did not sleep well.

Case 4. Michael D., æt. 29. Laborer. Facial neuralgia, probably syphilitic.

*The word "Dogwood" is used for the sake of brevity instead of "Fluid Extract of Piscidia Erythrina."

April 28th. R Dogwood 3 j*. Did not sleep well.
 April 29th. R Dogwood 3 ij*. Did not sleep well.
 30th. Fluid extract tonga 3 j ter die.
 May 8th. Tonga stopped. Complains of considerable pain. Final recovery.
 Case 5. William K. Alcoholism; pleuritis. April 29th. R Dogwood 3 ss at 8 p. m. Slept

well.

May 1st. Slept well.
 2nd. Had no Dogwood and slept better than on the night of (previous to?) April 30.
 Case 6. James E. G., æt. 56. Chronic nephritis; cough; dyspnœa.
 June 14th. R Dogwood 3 j. Did not sleep well. 15th. Repeated the dose with same results.
 16th. Slept better than night before.
 17th. 18th, and 19th. R Dogwood 3 j. Result not recorded.
 20th. Slept pretty well last night.
 Case 7. Mary O. C., æt. 23. Hysterical aphonia; anæmia.
 June 15th. R Dogwood 3 j. Slept.
 27th. R Dogwood 3 j. Slept last night but awoke with a start.
 29th. R Dogwood 3 j and Hoffman's anodyne.
 30th. Did not sleep very well last night.
 Case 8. Timothy M., æt. 73. Chronic rheumatism.
 July 1st. R Dogwood 3 j. Slept quite well.
 Case 9. Edward B. Phthisis and laryngitis.
 July 1st. R Dogwood 3 j. Did not sleep very well.
 Case 10. Martha L. Left hemiplegia; very restless.
 July 1st. R Dogwood 3 j. Didn't sleep very well. 2nd, and 16th. Repeated the dose with same

results.

Case 11. Sarah L. Lead paralysis.
 July 14th. R Dogwood 3 xv. Did not sleep well.
 15th. R Dogwood 3 j. Slept well. 16th, and 17th. Repeated the dose with same results.
 18th. Repeated the dose. Slept fairly well.
 19th. Repeated the dose. Slept well.
 23rd. Repeated the dose. No record of result.
 Case 12. Emma S., æt. 27. Neurasthenia, syphilis, etc.
 May 30th. R Dogwood 3 j. Slept a little the first part of the night.
 31st. R Dogwood 3 j. Did not sleep very well.
 June 1st. R Dogwood 3 j. Slept the first part of the night.
 2nd. R Dogwood 3 j. Slept all night. 3rd. Repeated the dose. Slept fairly.
 4th. No Dogwood. Did not sleep.
 5th. R Dogwood 3 j. Slept fairly.
 7th. R Dogwood 3 j. Did not sleep well. 9th. Repeated the dose with same result.
 10th. Repeated the dose. Slept well. 11th. Repeated the dose with same result.
 Case 13. Carroll C.; colored; teamster. Chronic nephritis. Ascites; dyspnœa which he calls

"asthma." Not relieved by quebracho.

June 8th. R Dogwood 3 j. Slept well. 9th, 10th, 11th, 12th and 13th. Repeated the dose with same results.

There is no record of the previous sleeping, except several prescriptions of chloral, bromide and morphia. After this time, however, there is no such prescription.

Case. 14. Lavina T., æt. 44. Greatly broken down; anæmic, with headache and gastric disturbance; complains of everything that is done for her in the way of medicine or food.

May 13th. R Dogwood 3 ss. Complains of nausea and headache following Dogwood.

Case 15. W. D. L. Melancholia. Attempt at suicide by laudanum.

May 14th. Did not sleep well last night; was nervous.

15th. R Dogwood 3 ss last night. Slept quite well.

16th. Slept very well without medicine.

17th. Dogwood last night and slept well.

18th. Ale.

19th. Did not sleep so well. Do not think ale agrees with him.

22d. No Dogwood. Did not sleep well.

26th. Discharged. Much relieved.

Case 16. G. O. W. Painter. Has had lead colic and dysentery.

May 4th. Now enters on account of dysentery.

11th. Pain better, and discharges less

12th. R Dogwood 3 ss, ter in die.

*It is possible that this means a simple syrup which was used for a few days, in proportion of one part fluid extract to three of syrup.

17th. Still has pain. Omitted Dogwood.

23rd. Discharged relieved.

Case 17. Sarah E. G., æt. 48. Chronic invalid; neurasthenia. Has used many narcotics.

May 23rd. R Dogwood 3 ss. Relief. 25th. Repeated the dose with same result.

Case 18. Ann B., æt. 40. Cephalalgia and paralysis of external rectus oculi, probably syphilitic.

May 25th. R Tonga, 3 j. Did not sleep.

26th. R Dogwood 3 ss. Did not sleep well.

Case 19th. (Private.) Mr. F., æt. betw. 60 and 70. Valvular disease of heart; great restlessness and dyspnœa. Took on several nights Dogwood 3 j, but often with Dovers powder. It is difficult to say whether any decided relief was obtained from it. Certainly it was not very great.

Case 29th. (Private.) A lady, æt. a little over 60, suffered from nervous wakefulness, and after trying the Dogwood several times, expressed what, it seems to me, is probably about the correct judgment on its virtues. She said that she didn't go to sleep any sooner with it, but was sure that she was less restless and turned over fewer times than without it. She remembered, too, that her son, who had the same sort of trouble, and to whom she on one occasion administered a dose, returned for another subsequently.

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